AMERICAN AGRICULTURIST

FOR THE

Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

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Calendar for the Month.

Day of Month.	Day of Week.	*Boston, N'Engl'd, N. York State, Michigan, Wisconsin, Iowa, and Oregon.* Sun rises.	Sun sets.	Mo'n sets.	*N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois.* Sun rises.	Sun sets.	Mo'n sets.	*Washington, Maryland, Virginia, Kentucky, Missouri, and California.* Sun rises.	Sun sets.	Mo'n sets.
		H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.	H. M.
1	T	5 57	5 42	8 58	5 57	5 43	9 5	5 56	5 43	9 12
2	W	5 58	5 40	10 1	5 58	5 41	10 8	5 57	5 42	10 15
3	T	6 0	5 39	11 7	5 59	5 39	11 13	5 58	5 40	11 20
4	F	6 1	5 37	morn	6 0	5 38	morn	5 59	5 39	morn
5	S	6 2	5 35	0 14	6 1	5 36	0 19	6 0	5 37	0 24
6	S	6 3	5 33	1 20	6 2	5 34	1 24	6 1	5 35	1 27
7	M	6 4	5 32	2 23	6 3	5 33	2 26	6 2	5 34	2 28
8	T	6 5	5 30	3 25	6 4	5 31	3 26	6 3	5 33	3 28
9	W	6 6	5 28	4 25	6 5	5 30	4 26	6 4	5 31	4 26
10	T	6 7	5 27	5 26	6 6	5 28	5 25	6 5	5 29	5 24
11	F	6 8	5 25	rises	6 7	5 26	rises	6 6	5 28	rises
12	S	6 10	5 24	5 34	6 8	5 25	5 38	6 7	5 26	5 43
13	S	6 11	5 22	6 3	6 9	5 23	6 8	6 8	5 25	6 14
14	M	6 12	5 20	6 33	6 10	5 22	6 45	6 9	5 23	6 51
15	T	6 13	5 19	7 22	6 12	5 20	7 29	6 10	5 22	7 36
16	W	6 14	5 17	8 15	6 13	5 19	8 22	6 11	5 21	8 29
17	T	6 16	5 15	9 16	6 14	5 17	9 23	6 12	5 19	9 30
18	F	6 17	5 14	10 25	6 15	5 16	10 30	6 13	5 18	10 36
19	S	6 18	5 12	11 36	6 16	5 14	11 41	6 14	5 16	11 46
20	S	6 29	5 11	morn	6 17	5 13	morn	6 15	5 15	morn
21	M	6 30	5 9	0 51	6 18	5 11	0 54	6 16	5 14	0 57
22	T	6 33	5 8	2 6	6 19	5 10	2 8	6 17	5 12	2 10
23	W	6 23	5 6	3 23	6 20	5 9	3 24	6 18	5 11	3 24
24	T	6 24	5 5	4 42	6 21	5 7	4 41	6 19	5 10	4 40
25	F	6 25	5 3	sets	6 23	5 6	sets	6 20	5 8	sets
26	S	6 26	5 2	5 6	6 24	5 4	5 11	6 21	5 7	5 17
27	S	6 28	5 0	5 50	6 25	5 3	5 57	6 22	5 6	6 3
28	M	6 29	4 59	6 44	6 26	5 2	6 51	6 23	5 5	6 58
29	T	6 30	4 58	7 47	6 27	5 0	7 54	6 24	5 3	8 2
30	W	6 31	4 56	8 54	6 28	4 59	9 1	6 25	5 2	9 7
31	T	6 33	4 55	10 3	6 30	4 58	10 08	6 26	5 1	10 14

PHASES OF THE MOON.

MOON.		BOSTON.	N. YORK.	WASH'N.	CHA'STON	CHICAGO.
	D.	H. M.	H. M.	H. M.	H. M.	H. M.
1st Quart	3	2 17 mo.	2 5 mo.	1 53 mo	1 41 mo.	1 11 mo.
Full M'n	11	4 10 mo.	3 58 mo.	3 46 mo	3 34 mo.	3 4 mo.
3d Quart.	19	2 26 mo.	2 14 mo.	2 2 mo	1 50 mo.	1 20 mo.
New M'n	25	6 14 ev.	6 2 ev.	5 50 ev.	5 38 ev.	5 08 ev.

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For *One* or *Two* Subscriptions, *One Year*, the price will hereafter be (post-free) **$1.50** each, instead of $1.60. (For 15 months, now, $1.80.)*

[ALL POST FREE.]		*For 15* months.*
Three Subscribers one year, **$4**, or **$1.33** each.		$1.65
Four Subscribers one year, **$5**, or **$1.25** each.		$1.55
Five Subscribers one year, **$6**, or **$1.20** each.		$1.45
Six Subscribers one year, **$7**, or **$1.17** each.		$1.40
Seven Subscribers one year, **$8**, or **$1.14** each.		$1.35
Eight Subscribers one year, **$9**, or **$1.12** each.		$1.30

[* These 15 month's terms are added to accommodate those who may wish to begin with the October number, and continue through 1879, a period of fifteen months.]

☞ **Single Numbers** sent, postpaid, for 15 cents each. Specimen numbers for examination sent, postpaid, for 10 cents each....☞ **Subscriptions** can begin at any time.

The above terms are for the United States and Territories, and British America. Add 14 cents extra per year for papers delivered by mail in N. Y. City, and for copies sent outside of the United States and British America, *except* to Africa, Brazil, British Honduras, the East Indies, and Mexico. For the last named five countries the extra charge is 38 cents per year, to cover extra postage; Single Numbers, 17 cents, post-paid....**Remittances,** payable to Order of Orange Judd Company, may be sent in form of Checks or Drafts on N. Y. City Banks or Bankers; or P. O. Money Orders; or in Registered Letters, such letters to have the money enclosed in the presence of the Postmaster, and his receipt taken for it, and the postage and registering to be put on in stamps. Money remitted in any one of the above three methods is safe against loss..**Bound Volumes** from Vol. 16 to 36 inclusive, supplied at $2 each, or $2.30 if to be sent by mail. Sets of numbers sent to the office will be bound in our regular style for 75 cents (30 cents extra if to be returned by mail). Missing numbers in such volumes supplied at 10 cents each.—**Any Numbers** of the paper issued for 21 years past, sent post paid for 15 cents each; or *any* full year, sent unbound, for $1.50.....**Clubs** of Subscribers can be increased at any time, at the club rates, if new members begin at same date as the original club.

The American Agriculturist for September comes to hand with 65 engravings of animals, plants, various useful contrivances for the Farm, Garden, and Household, and upwards of 160 articles and items, mainly upon the practical work of out-door and in-door life. The seven columns of hints, suggestions, and directions for the Work of the Month, prepared from the latest experiences of practical men in each department, in this, as in every number, are worth more than the cost of the entire paper. Guernsey cattle are described and illustrated. Sunddry Humbugs are exposed. "Ridding furniture etc. of Moths," is an important article that should be read by every house-keeper. Among the valuable articles are: Breaking and Training Colts; Talks on Farm Crops; Among the Farmers, by One of Them; Wheat Culture; Agriculture at the Paris Exposition; the Poisonous "Loco" or "Crazy-Weed" of the West, described and illustrated; Preparing for Winter; a fine, new, very early Peach; Notes from the Pines; Home Topics; Boys and Girls Columns; Desription of Turtles, etc., etc. Orange Judd Company, Publishers, New York. $1.50 a year; 15 cents a number.

EDITORS will find, among articles and items worth copying, the following which will not need illustrations: The items—prepared with much labor and condensed from extensive tables—on Wool, Coal, Iron, Petroleum, and U. S. Expenses, pages 368 and 371; Niagara Falls Water Power, page 394; Work of the Month, pages 363-4; Humbugs, p. 369—some of it quite racy; Remedy for *Moths in Furniture*, p. 370—should be known to every housekeeper; Among the Farmers, p. 374; Packing Eggs for Winter. The "Loco," p. 380, is very interesting, especially at the West, and may be used without the illustration. The Waterloo Peach, p. 380, promises to revolution peach culture, on account of its excellence and earliness, adapting it to more Northern regions; Mulplying Plants, p. 382, is invaluable to every Nurseryman and Grape-grower. Gruel for the Sick, etc., p. 384, is of decided value.

To Editors and Publishers.

For Clubbing with other Journals,

OR TO BE GIVEN

As Premiums by other Journals.

The *American Agriculturist* will be supplied at

$1 a Year,

(and sent *post-paid* to single names).

☞ As our regular full-paying ($1.50) subscribers are the first to secure such reduction—a serious loss to us of all profits on circulation—we do not care to make this reduction, unless the offer for clubbing is set forth prominently, and such commendation given as will be likely to secure *new* subscribers for this Journal, as well as for the Journal with which it is combined. (A mere offer at low combined rates, would simply under-bid our own terms with no advantage to us.)

Increased Circulation brings more advertising receipts. So the Publishers pay, *out of the advertising receipts*, premiums to those who assist in keeping up and increasing the number of subscribers.—More circulation also brings more readers to be benefited by the paper, and that, of course, is gratifying to the Editors.

Instead of Cash premiums, the Publishers arrange to supply good, useful, desirable articles, which they buy in large quantities, at the lowest wholesale cash rates, and pay for in part by advertising. *In this way* they can give much larger premiums than they could in cash, while the articles are *just as valuable as money* to those receiving them, even more so, as they are sure of being reliable.

It is a good thing all around: The Premium receivers get good articles, *free*; the new subscribers brought in are set to reading and thinking, which pays them; the manufacturers of good articles have them brought prominently before the public; the circulation of the paper is increased, and advertisers reach a wider field, and pay more; the Publishers thus have more receipts, and can make a better paper, and every reader gets the benefit.—There is abundant room for *every one* who wishes, to secure one or more of the premiums. Though almost every copy of the *American Agriculturist* is read by a good many persons, probably its total number of readers does not exceed two millions; so there are forty-two millions more in this country who ought to read it. *Any one* can find near him a few, if not many, persons who may be gathered in a premium club.

The Good Watch

Still Available.

Since offering this watch, as described on page 354 of the September *American Agriculturist*, the Publishers have purchased all the watches of this form and kind they could obtain in this country, and have ordered more from the Manufactory in Switzerland. Each one is started and run a few days before sending out, and regulated to within a few seconds of variation per day at ordinary temperature. Of course it is understood by all, that any watch will run a little slower in hot weather, and a little faster in cold weather, unless it be provided with a "compensating balance," which is only used in very costly time-keepers. All these watches that we have yet tried, when regulated, run to within a few seconds per day in the usual temperature. Indeed a good many of them, after a week's regulating, have run to within two to three seconds a day. *It is the best watch for the price we have ever seen*—better than we ever expected to find at so low a rate.

A large number of requests are daily coming in from those who wish the offer extended, so that they may have more time to raise the requisite club of subscribers. In response to their requests, and as we have the promise of an additional supply at an early day, we shall continue the offer for the present, or until further notice, upon the same terms as stated last month. For particulars, see page 354 of our last paper (September number).

☞ These watches are designed for a *special premium*, but so long as a full supply can be obtained for this purpose, single watches will be sold to our readers who desire them, at $10 each, as announced last month.

Every German Cultivator and Laborer on the Farm, or in the Garden, OUGHT to have the German *American Agriculturist*, and thousands of *new* subscribers are taking it this year. It contains not only the Engravings and all the essential reading matter of the American edition, but an additional *Special German Department*, edited by the Hon. Frederick Münch, of Missouri, a skillful, successful cultivator and excellent writer. No other German Agricultural or Horticultural Journal in America has been so long issued, or contains so much useful information and so many engravings.

Reliable Business Men, those who have both the *ability* and the *intention* to do what they promise, are the *only* ones invited to use the business-pages of this journal, and those in charge of that department are under positive instructions to admit no others at any price; and they try to live up to it, and generally do, though once in a while they may make a mistake—to err is human—but *this* seldom occurs. We could make a fortune in a single year, and supply the paper at lower rates, if the advertising pages were thrown open to those who gladly pay high prices, as they can afford to, because they give little for much. But we mean our advertising pages shall be a valuable source of *trustworthy information* to our readers.—When ordering from, or corresponding with any of our advertisers, or sending for catalogues, etc., it is well to state that you are a reader of this Journal. They will know what we expect, and what you expect of them as to prompt and fair treatment.

Failure of a Commission House.—The firm of Hull & Scotney, commission merchants of Philadelphia, have failed. The remaining partner, Mr. Scotney, writes that he was taken ill at the time, and for that reason did not notify us, hence the advertisement appeared in the usual place in our columns, a month after the firm had ceased to exist.

The Asbestos Liquid Paints of the H. W. Johns Mf'g. Co., have had remarkable success. They commenced making the paints a comparatively short time ago, and are already the most extensive manufacturers of paints in the country. The Company, No. 87 Maiden Lane, N. Y., offer special inducements to those who wish to introduce these paints in places where they have no local salesmen, and suggest that those seeking employment, or wish to add to their income, correspond with them with a view to business.

"Ashton's Factory Filled Salt" Premiums at the Dairy Exhibition.—Messrs. Nicholas Ashton & Sons, Liverpool, Eng., have written to their agents, Francis D. Moulton & Co., as follows: "We notice, with great interest, the movement for an International Dairy Fair, to be held in New York during the coming autumn, and trust it may meet with the success which the importance of the industry it will represent should command. We authorize you to offer to the Executive Committee five hundred dollars in gold for premiums, to be awarded to those who exhibit the best butter and cheese salted with Ashton's Factory Filled Salt. We leave to your judgment the conditions under which the awards shall be made." In accordance with the above, the following premiums are offered by Francis D. Moulton & Co.: "1st. For the best lot of cheese made with Ashton's Factory Filled Salt, whether from Canada, New York, New Jersey, or the New England States, $125. 2d. For the same from Pennsylvania, Ohio, Michigan, Wisconsin, Indiana, Illinois, Iowa, Kansas, Nebraska, or Minnesota, $125. 3d. For the best butter made with Ashton's Factory Filled Salt, whether from Canada, New York, New Jersey, or the New England States, $125. 4th. For the same from Pennsylvania, Ohio, Wisconsin, Indiana, Illinois, Iowa, Kansas, Nebraska, Michigan, or Minnesota, $125."—We trust that the competitors for these very liberal premiums will be numerous, and add greatly to the interest in and success of the exhibition.—N.B.—As will be seen by the advertisement, this salt is now put up in bags of 56 lbs. each, for the convenience of families and small dairies, who do not care to purchase the large bags.

The "Forest Rose" Strawberry.—As this promises to hold an important place in strawberry culture, it is desirable that its history be accurately recorded. In describing this variety in Aug. last, Mr. Roe states that it was discovered by Mr. J. A. Fetters, of Lancaster, O., who sold out his right in it to Mr. Weltz. Mr. Fetters writes that this is not exactly correct; he has not sold his interest in it, but has made arrangements with Mr. Weltz to sell the "Forest Rose" strawberry for a limited time.

HAVE YOU A HOUSE To Build, to Plan, to Alter, to Repair?—If so it will pay to first get and read Reed's "*House-Plans for Everybody*," just issued. It is full of plain practical suggestions all about houses. It gives engraved plans of 36 different houses, ranging in cost all the way from $250 to $8,000 each, illustrated by 175 engravings; describes the materials required, the items of cost, etc., etc. If one is to spend only $25 to $50 in repairs or changes, this book will save much more than its cost. Considering its size, its engravings, its real value, it is probably the cheapest book on house-building ever issued. The price, sent anywhere in the United States, post-paid, is only $1.50. Published by Orange Judd Company.

Sending Goods to New Zealand, Australia, etc.—New Zealand has a very large number of readers of the *American Agriculturist*, many of whom often write to us for information, which of course we are always glad to supply when practicable. Some queries are just at hand as to the shipping of goods there from America, particularly referring to advertisers in this Journal. There is a line of vessels running between New York and Australia, New Zealand, and the East, called the "Pioneer Line." The freight tariff varies with the season, and ranges from 27½ cents to 30 cents per cubic foot. In ordering goods of any of our advertisers, money in amount equal to the mentioned prices only need be forwarded, and the freight can be paid on receipt of goods. When convenient, it is well for neighbors to club together, and send their combined orders to some trustworthy person here, who will see that all are properly filled. Any thing that we can do in the way of purchasing and forwarding desired articles, we will very cheerfully attend to.—Messrs. R. W. Cameron & Co., of this city, make it their business to effect purchases in all parts of the United States, and will send them to any part of Australia, New Zealand, and the East, in consideration of a commission of 2½ per cent. Their agents in Dunedin and Christ Church are Messrs. Dalgety, Nichols & Co.; in Melbourne, Stuart, Couche & Co., and in Sydney, R. Towns & Co.

Living Plants in the House are always desirable on many accounts. They give pleasure, and cultivate a taste for the beautiful—in children even. The best information ever given to enable the inexperienced to grow plants successfully, is supplied in a valuable book just issued, entitled "Window Gardening," in which the author talks from successful experience and practice. The cost of the book is only $1, including postage, to any part of the United States. Orange Judd Company, Publishers.

All About Manures, and Manuring.—This topic, so important now to every farmer, is treated very fully in a Book just issued. It is the result of many years' experience and observation by an educated practical farmer, the author of "Walks and Talks Upon the Farm," etc. Every cultivator would find it worth many times its cost. The information is given in plain conversational language, adapting it to the comprehension of all classes. Price only $1.50, postage included. Sent by Orange Judd Company on receipt of price.

Fine Gladioluses.—On July 15-17th, Messrs. C. L. Allen & Co., of Queens, N. Y., made, at the auction rooms of Messrs. Young & Elliott, No. 12 Cortlandt St., an exhibition of Gladioluses, which was large and fine. The display has never been equalled in this country, and it is doubtful if it could be excelled abroad. Besides the standard sorts, there are thousands of seedlings, some of which are of great merit, and the result of years of careful labor in this specialty.

Embellish the Stable.—Coachmen, hostlers, and other stablemen, take pride in the appearance of their animals and their surroundings. We often see stables embellished by pictures of famous horses, and if nothing else is at hand, advertisements of stallions, announcements of races, etc., are put up in conspicuous places, that might well be occupied in a more useful manner. Doct. Liautard has just prepared, and the Orange Judd Co. has published, a chart which may well have a place in any stable, large or small, as while it gratifies the common desire to decorate, it can not fail to prove useful. The chart gives, by the aid of abundant engravings, and brief, though sufficient descriptions, the method of telling the ages of domestic animals; especial prominence is given to the horse, but cattle, sheep, pigs, and dogs, are illustrated also. The appearance of the different teeth at the various periods of the animal's life, is distinctly given in the engravings, while the descriptive matter is arranged in a table that admits of ready reference. This chart gives the information that might be spread over the pages of a considerable volume, and has the advantage over that in presenting the whole subject to the eye at once. A great deal may be done in the way of teaching, without assuming to teach, and many, with this chart constantly before them, will become familiar with its contents without knowing it, while the same presented in a book form would be disregarded. The chart is 28½ by 21½ inches, on heavy card-board, and may be framed or not, as one fancies. Sent by mail, post-paid, for one dollar.

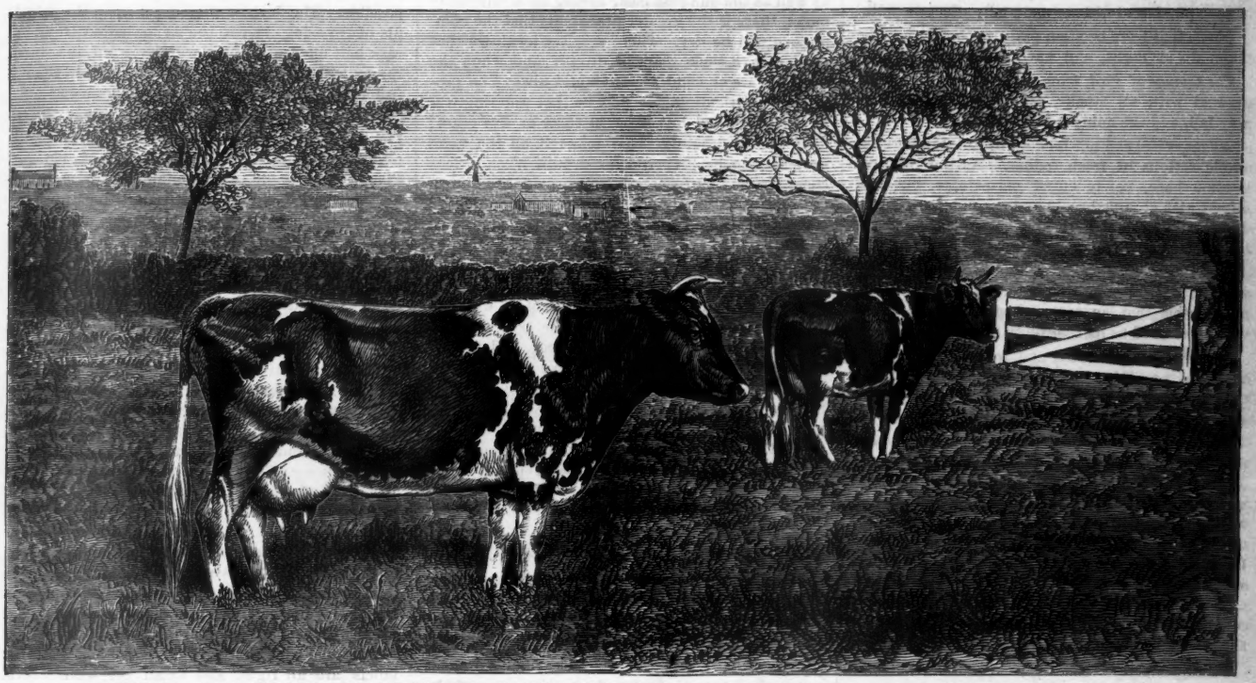
"Birds of all kinds, and their plumage, are much used for house decoration," is given in the "Home News," of a daily paper, and very unpleasant "news" it is. We were rejoicing that the custom of killing every thing guilty of no other crime than that of wearing feathers, for the decoration of bonnets, or hats, was abating, and here "bird murder" appears in a much worse form—"House Decorations" indeed! Women—Ladies (if you please), can do much to control this kind of decoration—or desecration. We appeal to them not to countenance the killing of God's most beautiful creatures, that their skins may be degraded to the uses of wall paper. If we tolerate this, do we not deserve a greater plague of insects than we have yet suffered? Let every woman resolve to tolerate no ornament on her person, or in her house, that will encourage bird killing.

American AGRICULTURIST.
NEW YORK, OCTOBER, 1878.

The Guernsey Cattle.

The Guernsey breed of cattle is now receiving considerable notice from our breeders. In this country the Jerseys have heretofore monopolized most of the attention bestowed upon Channel Island cattle, though the number of Guernseys exported is large. The average yearly number of cattle sent from the island of Jersey is about 2,000, and from Guernsey half that number. Of the many thousands thus exported, comparatively few have come to this country. The engraving represents a scene in a pasture on the farm of Mr. Rendle, at Catel, Island of Guernsey, with a view of the farm buildings in the distance. The cow in the foreground, owned by the gentleman above named, is "Lady Jane," a first prize winner at the fairs for many years, and an excellent specimen of the breed.

The Guernseys are similiar in build to the Jerseys, though larger and inclined to flesh, and not so stylish. Their color is usually a rich fawn, with much white; the muzzles and eyelids are buff; in fact, all the "points" are light, offering a strong contrast to the black points of a fashionably marked Jersey. The Guernsey is a deep milker, producing the yellowest of butter of superior quality. Some good judges, familiar with both breeds, place the Guernseys ahead of the Jerseys as butter makers; while their size and capability of taking on fat when they cease to be useful for the dairy, render them a desirable breed. One farmer of our acquaintance, who has an excellent herd of both of these breeds, says the admixture of the cream from Guernsey milk with that from Jerseys gives the butter a deeper, richer color, and makes it bring a higher price than that from the Jerseys alone. The Guernseys being, as a rule, larger milkers, consequently yield more butter, but the quality of that made exclusively from their milk is not quite equal, as it lacks something of its delicate flavor, to the best Jersey butter. This experience indicates, that one or two good Guernsey cows in any herd kept for butter, would probably improve its product as a maketable article. Some of the Guernsey cows that we have seen, are nearer the ideal cow than any others we have met; their rich color, large, fine bodies, handsome proportions, fully developed udders, and other "milk signs," together with their docility, and their rich and generous milk and butter yield, make them a distinct and characteristic breed of dairy cattle. The Jerseys hold a justly deserved prominence as butter producers, and it is safe to predict that their numbers will greatly increase. The recent numerous sales indicate an increase in the importations, notwithstanding the fact that some of our breeders are now breeding just as good Jerseys as can be found anywhere in the world. The rapid depletion of the herds of the "mother country" under the annual culling out of 2,000 animals for exportation, renders this state of affairs inevitable. It is a fact, that the best Jersey cows, both on the Island and in this country, closely resemble the Guernseys in size and general appearance—a fact which speaks strongly for the Guernsey type as one to be regarded by breeders of dairy stock of any kind.



FIRST PREMIUM GUERNSEY COW, "LADY JANE," AND GUERNSEY HEIFER.

Hints for Work.

Be Prompt now, when the days are shortening and the season for field work is rapidly nearing its end. Utilize every hour for securing the crops yet ungathered. Neglect no chance for putting the ground in order for spring work, but turn every fair day to account, that nothing be neglected.

Make a Note of what Remains to be Done.—There are a score of things to be done on every farm that may be considered of little account singly, but which in the aggregate make up a serious total. Every one should look about, note down what needs to be done, and frequently examine the record.

Cutting Corn.—Every day the corn remains uncut, after maturity, there is loss. Corn gains nothing by standing after the kernels are glazed, but the fodder loses rapidly in quality. Much of its digestible matter is changed into woody fiber, becoming hard and undigestible. The sooner it is cut and shocked, the sooner it can be housed in safety.

Corn Stalks are no longer to be considered as a waste product, good for nothing but to be trodden under foot. They are worth fully the cost of putting in the crop, if well saved and cured. When cut at the right time, and well cured, six dollars a ton is, by many, considered a reasonable estimate of their value for feed, when hay is worth $10 per ton. Careful experiments place well cured corn-stalks as worth about three-fifths as much as hay.

Fodder Stacks.—Much has been previously said in the *American Agriculturist*, as to the methods of curing corn-fodder. A caution may yet be given. *Let the stalks be thoroughly cured before being stacked.* Small stacks will not readily heat and mould; large ones will. Put a ventilator, if only three or four rails set on end, spread below, and tied at top, in the middle of the stack. Carefully build, or protect them on top, so as to shed water. Better finish the

Husking, if possible, while it is still pleasant weather. It is disagreeable work on a raw November day, when fingers get numb, and the body chills quickly. Last year we saw farmers with wives and children thus employed, when snow was on the ground and all through the stooks. And so it will be again with others who are behind hand.

Husking Machines have been much improved since first brought out. For a thousand bushels of corn it will pay to use a power husker. By and by, the thrasher-men will have machines to do this work, and shell the corn at the same time.

Grinding with the Husk.—Some of the steel and chilled iron corn-cob mills will grind corn in the husk. For cows, cattle, hogs, and mules (and perhaps horses, when it is carefully used), it may be thus ground, conveniently and economically. The corn may be cribbed in the husk, and used as required. If not perfectly dry, grind small quantities at a time, as it will heat if kept in large bulk.

Wheat may yet be sown south of latitude 40° or 41°, if done without delay. If the soil is well drained and in good condition, this late sowing may sometimes be better than earlier, as the crop is thus more likely to escape the Hessian fly.

Harrowing Wheat in the fall should only be done when the surface of the land is dry. No kind of cultivation should take place when the ground is wet. Experimental cultivation should be done as early as possible. Deep plowing is not needed. To kill weeds and mellow the surface are what is wanted. Harrowing may be done safely two weeks after sowing, and repeated twice or thrice. Then

Grass Seed May be Sown, but not before. It will take at once on the mellow soil, and soon get ahead of that treated in the usual let-alone manner.

Wheat and Grass Fertilizer.—Wheat needs nitrogen at this season, and so does the grass. 100 lbs. per acre of nitrate of soda would be a help to both.

Green Fodder for Spring.—Rye may be sown any time this month; the sooner the better for early spring feed. Sow thickly, 4 bushels per acre, and fertilize well. Where the winters are open, as in the border and Southern States, this will make excellent winter pasture and give a crop of grain or green fodder besides.

Mangels and Beets are injured by frost. These should be gathered and secured in pits this month, where frost is prevalent. The fresh leaves have an injurious effect upon cattle if fed in excess. A day or two after cutting, they may be fed safely—a pressed bushel-basketful at a time, sprinkled over with a handful of salt.

Turnips will resist considerable frost and grow rapidly in cool weather. If standing too thickly in the rows, thin out, using those removed as fodder. If fed to cows, they should be given at milking time. The flavor will disappear before 12 hours have expired, and will not materially affect the milk.

Horses that have been on pasture, should now be taken up at night, and have some dry feed.

The Change of Feed, from green to dry, should be gradual with all stock; otherwise, the appetite may fail, and the animals lose thereby.

Milking Cows can not be kept in full flow without ample rations of fresh fodder. As the pastures become bare, newly cured corn-stalks, cut and mixed with chopped roots and sprinkled with middlings, and ground corn and oats, may be given. Liberal feed always pays with the right kind of cows.

The Aim in Feeding, now, should be to get the stock into good condition before cold weather, remembering that an animal beginning the winter well, is as good as half through it already.

Sheep, if fed liberally, and managed carefully, are most profitable stock. The better we do for them, the better they will do for us; badly managed, they are likely to prove a failure.

For March Lambs, the ewes should be coupled this month. The best ewe is a common grade Merino, or native sheep. For the earliest, those which come from Ohio, or Western Pennsylvania, weighing about 90 to 100 pounds, are excellent for this purpose. A pure South-Down ram, and next, a Hampshire-Down, and next, a Cotswold, is the best animal to cross upon these. A plump, fat lamb of moderate size, will bring more than a "scrawney" one half as big again. The black face and legs of the "Down" breeds are desirable in market lambs.

Feeding Sheep for Market, is a profitable business for those who have judgment to buy well, to feed well, and to sell well. Two profits can easily be made: A big manure heap, and good pay for feed and care will be returned to the skillful feeder. For more detailed information, "Stewart's Shepherds' Manual" may be consulted.

Winter Rape, for winter and spring feeding for sheep in the South, may be sown early this month. Five pounds of seed per acre, if planted in drills; or if broadcast, 8 pounds will be needed. It may be fed off by penning the sheep upon the crop as soon as it has sufficient growth. The surplus may be plowed under in the spring as an excellent preparation for oats or corn. This has been grown advantageously for this purpose as far north as Rochester, N. Y., the sheep even leaving a warm shelter and pawing away the snow to find it.

Swine.—Brood sows should be well fed now, so that they will be in good condition for coupling next month for March pigs. Grades or half-breds of any good breed are more profitable than full-bloods for the farmer. Keep no pig over a year old for fattening, if the most profit is looked for.

Feeding for Pork, may best be begun at once, using up the soft and poor corn first. Some feed green stalks, cut fine, and mixed with meal; this will bring the pigs into a thrifty condition, to be finished very rapidly in November.

Fall Pigs, may be carried over on skim milk, a few cut corn-stalks, potatoes or roots, with a little bran, and plenty of fresh water.

Water.—It is a great mistake to stint animals in water; 75 per cent of their weight is water. Digestion cannot go on without it. Water is therefore food in one sense, and an ample supply should be provided for every animal to drink when inclined.

Poultry.—If eggs are expected during the winter, they must be provided for now. Dispose of the old hens; select as many of the best young pullets and feed them well. Give wheat soaked in hot water, once a day. Barley, buckwheat, and corn, in equal proportions, may make the rest of the food; chopped cabbages will help. Provide clean quarters, plenty of water, gravel, old mortar, and charcoal. Make the house warm; do not crowd too many into it, and a good supply of eggs will result.

Notes for the Orchard and Garden.

In many portions of the country, there has been such an excess of rain, that artificial watering has not suggested itself. The summer of last year, as well as the one just past, having been unusually moist, there is the greater probability that the coming one will be dry. There are few localities that do not have their years of drouth, and when the facilities are at hand, there should always be provision for irrigation. It may be that watering will be really needed but once in three or five years; it is this uncertainty that makes it all the more necessary to be prepared for drouth when it does come. Every experienced fruit grower has known seasons when an abundance of water would have given him a yield of strawberries, the profits on which would have paid for a much larger outlay than is ordinarily required to provide means to irrigate the whole garden; and so with other crops. In our uncertain climate, the control of water in both directions is necessary to the best success. Ability to remove excess by drainage, and to supply the deficiency by irrigation, give the enterprising cultivator a great advantage over the one who "takes things as they come." This is a most favorable month for all work requiring the removal of earth, and such improvements as road making, grading, etc., are not only more sure of being made, but they will be better done now than in the busy, but often cold and cheerless days of spring.

Orchard and Nursery.

Last month's Notes on fall planting, are timely now. With some fruits this is a year of abundance, and as usual in such seasons, only the best fruit sent to market in the best shape will pay

Freight and Charges, which are likely to be as much on a barrel of poor fruit, as on one of the choicest. While the poor fruit may be turned to account at home, if only fed to the pigs, when sent to market, it may bring the shipper in debt.

Apples are generally barreled in the orchard as they are picked, but the long keepers are considered to keep better, if allowed to lie in heaps two or three weeks before barreling; the skin toughens, and they lose some moisture. We generally advise making two sorts for market, and a third to be kept at home. When fruit is so abundant as now, the "seconds" will hardly sell at all.

Firm Packing is essential; when the barrel is half full shake gently, just enough to settle the fruit; do the same when the barrel is nearly full, and put on enough by hand to form a level layer—projecting sufficiently to require strong pressure to bring the head to its place.

Barrel Presses, working with a screw, are sold at the agricultural ware-houses, or a lever may be rigged to answer the purpose. The fruit must be pressed so firmly that it will not move in handling. Mark the opposite head, as the one to be opened.

Winter Pears are similarly treated; choice table kinds are generally packed in half barrels, and very select specimens, in shallow boxes, holding a single layer, each pear wrapped in tissue paper.

Quinces are packed in barrels or crates; handle carefully to avoid rubbing off the bloom, and mark on the package the number of quinces, as in most markets they are sold by the hundred.

The Fruit Cellar should be in readiness, but the fruit may be kept under a shed or elsewhere until there is danger of freezing. In storing, put the barrels of earlier ripening sorts nearest the door. Provide ample ventilation under control, and tight, easily managed windows shutters; in mild weather, open at night and close during the day....In seasons of abundance, much fruit will be made into

Cider, especially as a step towards vinegar. As the richest juice makes the best cider, so the better the cider the finer the vinegar, though poor fruit will make a better article than is usually sold. Those who make vinegar only occasionally will hardly be at the expense of a special building for it.

Patent Vinegar Processes are advertised, some of which are merely well known directions sold at a high price, and come very close to being frauds—we have no confidence in *any* of them. On the other hand, some of the vinegar-making devices we have known are useful. To make good vinegar

The Essentials are: good cider, a temperature of about 70°, and as complete exposure to the air as possible. The devices offered act upon the principle of exposing cider to the air in shallow trays. A cask half filled with cider, with bung out, in a warm room, will become vinegar much sooner than a full cask, bunged up, in a cool cellar.

Vinegar-making is a sort of fermentation greatly facilitated by a kind of low microscopic plant, popularly known as the "mother" of vinegar. Placing cider in old casks containing this, and mixing cider with old vinegar, hasten the process.

Pomace is usually thrown in a heap where it remains a nuisance for a long time. Cattle and pigs will consume a little of it, but there is not much nutriment in it, and it is better to break it small and put it in the manure heap.

Heeling-In may be done in such a manner as to greatly injure young trees, but if properly done the objections often made to the practice have no weight. As a general rule, if one is at a distance from nurseries, and intends to plant in spring, it is better to procure his trees in autumn, heel them in, and have them at hand ready to plant in spring. The trees are likely to be taken up with better roots, and the risks of injury in transportation are less. Heeling-in consists merely in burying the roots and parts of the stems of the trees in a dry mellow soil. If set upright they are more exposed to the weather, but there is less danger from mice than if slanting. The usual method is to open a trench, lay in the trees in a sloping position, and fill in with earth. See that no unfilled spaces are left around and among the roots, and that the labels are all right, and finish off with several inches of soil patted well with the spade.

Various Matters.—Top-dress the Orchard with fine manure this month, or later....Leave no dead weeds, grass, or other rubbish near young trees to harbor mice....Recently planted trees should have a conical mound of earth, about a foot high, around them.

Fruit Garden.

Last month's Notes are mainly seasonable now. It is often well to protect plants that are really hardy, the protection being not so much against the severity of the cold as the sudden alternations. This being the case, the protecting material must not be applied too early, it being quite soon enough when the ground begins to freeze.

Strawberries are sometimes injured by too much covering; the straw, marsh hay, or other material, should be placed freely upon the soil, but only an inch or two thick over the plants themselves.

Raspberries of tender sorts are laid down and covered with a few inches of earth. This is quickly done by two men—one to bend over the plants and the other to put on the soil.

Grapes.—See directions for picking already given. We are often asked how to keep this fruit. Many tons are sent to market for the holidays, preserved by boxing them, as described last month, and keeping in an even temperature just above freezing. It must be borne in mind that there are good and bad keepers among grapes, as there are among apples and pears. The Concord, for example, will keep but a short time under any conditions; Delaware is somewhat better; Diana is one of the longest

keeping, while Catawba and Isabella are excellent in this respect, tons being preserved every year.

Pears.—The treatment of winter fruit is mentioned under Orchard. That upon the shelves of the fruit-room needs frequent examination, that those in proper condition may be used when ready.

Kitchen and Market Garden.

In many localities the garden will go into "winter quarters" this month, and where this is postponed for a while, operations should be made in anticipation of the first heavy frosts. Tropical plants, like tomatoes, Lima beans, squashes, etc., succumb to the first frost; beets, carrots, celery, etc., are less sensitive, while parsnips and salsify endure the coldest weather without injury.

Cold Frames should be made ready for cabbages, cauliflower, and lettuce. Choose a spot of light and dry soil, in a sheltered place; if no spot protected by a fence or building is available, a temporary fence may be put up at the north side. If the plants are only to be protected, and are not expected to grow, a very rich soil is not needed. If the frames are to be used afterwards for growing plants, then the soil should be well fertilized; in any case it should be spaded and made fine, removing all stones, etc. The rear of the frame is a plank, 12 inches wide, and the front 8 inches, and far enough apart to accommodate the sashes; the length will be governed by the number of sashes; the ends are closed by properly shaped pieces of plank. It is well to place strips from front to rear where each two sashes meet, for these to slide upon; the ends of these slides are dovetailed into the edges of the front and rear planks, and it is convenient to have a narrow strip placed lengthwise in the center of each, to separate the sashes, and allow them to run regularly, when moved upon them.

Pricking out the Plants is done from the middle of this month to the middle of next. They are set 2½ to 3 inches apart each way for cabbages and cauliflowers, and 2 inches for lettuce. The first two must always be set in the soil down to the first leaf, to protect the stem, the earth being pressed firmly about them. Water, and if the sun shines, shade for a day or two. The sashes will not be needed until there is freezing cold weather. In Virginia and southward,

Ridges supply the place of cold frames for cabbages; the soil is thrown up into ridges a foot or more high, running east and west. Instead of setting the cabbage plants in cold frames, they are planted in November on the south side of the ridges; in very cold weather cover lightly with straw or litter. As the plants are to grow here, the soil between the ridges must be well fertilized.

The Storing of Roots and other crops must be provided for. The plan of filling up the cellar of the dwelling with various kinds of vegetables is objectionable. Small quantities for immediate use may be kept there, but the bulk of them should be stored elsewhere. Roots for table use should be placed in the cellar in bins, boxes, or barrels, with sufficient earth among and over them to prevent shrivelling. If there is no root cellar, the plan of storing in pits or trenches is an excellent one.

Pits for Roots must be made where water will not stand on the bottom; they are dug 3 or 4 feet deep, 6 feet wide, and as long as needed. The roots are stacked in these, beginning at the end of the pit, and fill 3 feet of its length; a space of 6 inches is left, and another section of 2 feet is built up, and so on, in each case piling the roots up to the ground level; the spaces are then filled in with earth, and the pit will present a series of sections of 2 feet of roots, and 6 inches of earth. The roots are covered lightly at first, but when cold weather comes, put on about 2 feet of soil, rounded and smoothened, to carry off water.

Harvesting of Roots should not be done until the growing season is quite over. Beets and carrots have their sweetness injured by hard frosts; turnips may remain until there is danger of freezing; parsnips, salsify, and horse-radish being perfectly hardy, many dig of these only what will be wanted while the ground is closed, thinking that they are improved by freezing.

Sweet Potatoes are to be dug as soon as the vines are touched by frost, and allowed to dry in the sun; large quantities are kept in houses that can be warmed to a temperature of 60°. Small quantities may be kept in a warm closet or other warm place.

Squashes will not keep if the least touched by frost. If a frost is threatened, gather and place in heaps, and cover with the vines. Handle with great care not to bruise them, and store in a warm place.

Tomatoes.—The season may be prolonged by covering a few vines with a barn-sheet or other cloth, to carry them through the first frost. If the partly ripened ones are picked and placed in a greenhouse or frame, or a sunny window, they often ripen up.

Celery should have the stems brought up together, and the earth, first loosened with a hoe, brought to and pressed around it with the hand, sufficient to keep the leaves in an upright position. This "handling," as gardeners term it, is all that will be needed for the portion to be stored for winter; that wanted for early use must be banked up with earth, quite to the tops, using the spade for the work. In the climate of New York, it is not stored for winter until next month.

Spinach and Sprouts, in order that they may be of a good size to winter over, need frequent hoeing so long as growing weather continues.

"*Making Garden*" is usually put off until spring, but the work should be commenced now by manuring and plowing wherever the crops are off. If new land is to be added, or a new garden made upon land in grass, apply a liberal dressing of manure and turn under the sod.

Et cetera.—Gather up all refuse and take to the pig-pen or compost heap, as may be....Burn all weeds that appear seedy....Provide covering material, such as leaves, marsh hay, etc....Gather sweet-herbs, tie in small bunches, and hang in an airy place to dry....Chickweed, common in the older States, will flower and produce seeds when not actually frozen—clear it off.

Flower Garden and Lawn.

In last month's Notes, we made some reference to the destruction of lawns by the "white grub." Since then we have seen most melancholy evidence of its ravages. In some parts of New England, especially near Boston, the owners of fine lawns are well nigh discouraged. The "white grub," the larva of the "May-bug," "June-bug," or "Dor-bug," as it is variously called, has utterly ruined the turf. These grubs work just at the surface of the soil, eating the roots of the grass as they go, so that large sheets of turf may be lifted as if it were a blanket. As grubs they last three years in the ground, and these appear to be in their second year. So numerous are they that 12 bushels were taken from one place that we visited. The trouble was not discovered until the work was done; had the presence of the grubs been known early in the season, frequent rollings might have saved the grass. Of course the only thing to be done was to make the lawn anew. Some made applications of alkalies and acids, and think they have saved their grass; such are deceived by the growth of annual grasses, such as Crab-grass, (*Panicum sanguinale*), Barn-yard Grass (*Panicum Crus-galli*), and other late comers. The only remedy is to remove the remains of the old turf, gathering and killing the grubs that are found, prepare the ground, and seed anew. Crows, blackbirds, and other birds were constantly at work, digging for the grubs, and though they destroyed many, the proportion, as compared to the whole, was small. It is impracticable to attack the insect in the grub state, as it is hidden from sight, but there must be a combined effort to trap and destroy them in the perfect state of beetles, else this severe loss may occur again. It is no small expense to relay 10 to 20 acres of lawn—besides, these grubs do not confine themselves to grass alone, but feed upon almost every growing thing that comes in their way.

Chrysanthemums to bloom in-doors, should be potted, and those to remain in the open ground will need stakes before the severe storms come.

Spring Bulbs should be planted as soon as they can be had from the dealers. Those who are not fanciers, but wish a general effect, without regard to names, can buy assorted Hyacinths, Tulips, etc., by the dozen, of the dealer's selection, much cheaper than named kinds. Double Tulips are very showy, they make a blaze of color, and are deserving of more attention than they receive.

Bulb Beds need a light, open, and very rich soil; the general rule is to put the bulbs below the surface to a depth equal to their own thickness.

Crocuses and Snow Drops may be put in patches here and there in the grass, and left to themselves.

Old Bulbs.—Those which were taken up from the beds last summer, and those that flowered in pots, will never bloom so well again; these may be planted in clumps here and there in the edge of shrubbery and in the border. Their flowers, while far below the "standard," are very useful for cutting.

Protection from Frosts.—In the climate of New York, we usually have two or three nights of frost at first, and then some weeks of the finest possible weather, and it pays to be at some trouble to protect tender plants during these early frosts; a light sheet, or even newspapers, if over beds of coleus, cannas, geraniums, etc., will save them from these first frosts, and much prolong their bloom.

Cannas do not keep so well if the foliage is killed by frost, and to have sound roots the tops must be cut away as soon as they are slightly nipped.

Dahlias.—When the foliage is killed, cut away all above ground, and leave the roots until a bright, warm day; then dig them early, handling carefully, as they break easily; fix the label securely to each, and allow them to dry in the sun all day. Store in a place that will keep potatoes in good order.

Tender Bulbs, like Tiger-flowers, Gladioluses, etc., must be lifted before the ground freezes, and stored in a cool, dry place. Tuberoses that have not yet flowered, or have yet many buds, may be lifted and put in boxes of earth; placed in a greenhouse or sunny window, they will finish blooming.

House Plants, if any are still in the borders should be taken up without delay. See article on "Preparing for Winter," on p. 382.

A Covering of leaves, straw, or littery manure, while not absolutely needed, may be given to most hardy herbaceous plants with benefit; it will cause a stronger bloom in the spring, while it will be of great service to those that are barely hardy.

Leaves should be raked up not only as a matter of neatness, but for the sake of the leaves, which are one of the best possible covering materials.

Greenhouse and Window Plants.

The chief work with these, is to prepare them for their winter quarters, as indicated last month, which is supplemented by an article on a subsequent page (382), and these together give about all that need be said on preparing for winter....We must emphasize the necessity for a

Gradual Change from the open air to the confinement of the house. Plants in the greenhouse and in windows, should have full air on pleasant days.

Plants for Forcing.—Many of the early blooming plants, including shrubs, force readily, even in window culture, and give an abundance of bloom in February and later. Among the most useful are Perennial Candytuft; Bleeding Heart (*Dicentra*); Japan Astilbe (incorrectly, *Spiræa Japonica*), and Lily of the Valley, among herbaceous plants, and in shrubs: Slender Deutzia, Thunberg's Spiræa, and even small plants of Weigelas, Forsythias, and Dwarf Lilacs may be used where there is room. These should be taken up and potted as soon as growth ceases, and placed in a cool cellar or in a pit where they may freeze, if it so happens, without injury. The end of December or early in January, is soon enough to bring them into a warm room.

Bulbs may be grown in water, if one fancies, but the bloom is never so satisfactory as from those potted in rich soil. Pot early in good garden soil enriched with cow manure, and add enough sand to keep it open. The catalogues give descriptions of the various bulbs, with full details on their culture.

Commercial Matters—Market Prices.

CURRENT WHOLESALE PRICES.

	Aug. 12.	Sept. 12.
PRICE OF GOLD	100 1-2	100 1-4
FLOUR—Super to Extra State	$3 45 @ 4 50	$3 25 @ 4 40
Super to Extra Southern	3 40 @ 6 50	3 35 @ 6 50
Extra Western	3 90 @ 8 75	3 85 @ 8 75
Extra Genesee	4 25 @ 5 75	4 00 @ 5 75
Superfine Western	3 40 @ 4 00	3 25 @ 3 85
RYE FLOUR, Superfine	2 70 @ 3 40	2 65 @ 3 25
CORN-MEAL	2 35 @ 3 00	2 35 @ 2 95
BUCKWHEAT FLOUR, ₱ 100 lbs	— @ —	2 60 @ 2 85
WHEAT—All kinds of White	1 00 @ 1 26	98 @ 1 17½
All kinds of Red and Amber	90 @ 1 16	85 @ 1 09
CORN—Yellow	47 @ 55	49 @ 56
Mixed	44 @ 50	47 @ 51
White	48 @ 60	50 @ 53
OATS—Western	29 @ 39	24½@ 31½
State	30 @ 39	28½@ 31½
RYE	61 @ 69	50 @ 64
BARLEY	82½@ 1 25	80 @ 1 25
BARLEY MALT	65 @ 1 25	65 @ 1 25
HAY—Bale, ₱ 100 lbs	30 @ 80	30 @ 75
STRAW, ₱ 100 lbs	20 @ 45	25 @ 45
COTTON—Middlings, ₱ lb	12 @ 12¼	11½@ 12
HOPS—Crop of 1878, ₱ lb	— @ —	14 @ 18
" 1877, ₱ lb	5 @ 12	4 @ 12
" olds, ₱ lb	1 @ 3	1 @ 2
FEATHERS—Live Geese, ₱ lb	35 @ 48	32½@ 45
SEED—Clover, West. & St'n	Nominal.	7¾@ 8¼
Timothy, ₱ bushel	1 30 @ 1 45	1 25½@ 1 35
Flax, ₱ bushel	1 35 @ 1 40	1 48½@ 1 52½
SUGAR—Refin'g & Grocery ₱ lb	6 @ 8¼	6¼@ 8⅛
MOLASSES, Cuba, 50 test ₱ gal	30 @ 31	31 @ —
New Orleans, ₱ gal	25 @ 48	28 @ 50
COFFEE—Rio(Gold)	13¾@ 17½	14½@ 17¾
TOBACCO, Kentucky, &c., ₱ lb	2½@ 14	2½@ 14
Seed Leaf, ₱ lb	3½@ 50	3½@ 50
WOOL—Domestic Fleece, ₱ lb	20 @ 44	20 @ 42
Domestic, pulled, ₱ lb	22 @ 40	20 @ 38
California, spring clip	12 @ 28	12 @ 27
California fall clip	12 @ 20	12 @ 20
TALLOW, ₱ lb	6½@ 7	6½@ 7⅛
OIL-CAKE—₱ ton	30 00 @30 50	31 00 @ —
PORK—Mess, ₱ barrel	10 75 @11 25	9 37½@10 00
Extra Prime, ₱ barrel	9 75 @10 25	Nominal.
BEEF—Extra mess	10 50 @11 00	10 00 @11 00
LARD, Kettle, & bbls, ₱ 100 lb	7 37 @ 7 85	6 62½@ 7 10
BUTTER—State, ₱ lb	8 @ 23	8 @ 23
Western, poor to fancy, ₱ lb	5 @ 22	5 @ 22
CHEESE	3 @ 8	3½@ 8¾
EGGS—Fresh, ₱ dozen	16 @ 16	16 @ 20
POULTRY—Fowls, ₱ lb	9 @ 12	9 @ 13
Chickens, ₱ lb	10 @ 14	10 @ 15
" Penn., ₱ lb	14 @ 16	14 @ 16
Turkeys—₱ lb	10 @ 16	11 @ 14
Geese, ₱ pair	90 @ 1 50	1 00 @ 1 75
Ducks, ₱ pair	45 @ 75	40 @ 75
Roosters, ₱ lb	5 @ 6	5 @ 6
PIGEONS, wild, ₱ doz	75 @ 1 00	1 21½@ 1 50
SQUABS, per dozen	60 @ 1 75	— @ —
GROUSE, ₱ pair	— @ —	70 @ 75
PARTRIDGE, ₱ pair	— @ —	80 @ 1 00
SNIPE, per doz	— @ —	1 00 @ 1 50
WOODCOCK, ₱ pair	— @ —	70 @ 90
REED BIRDS, per doz	— @ —	25 @ 35
APPLES—new, ₱ barrel	50 @ 2 50	50 @ 2 25
PEARS, ₱ bbl	2 00 @ 4 00	2 00 @ 7 00
PEACHES, ₱ crate	75 @ 3 00	75 @ 2 50
BLACKBERRIES, ₱ qt	4 @ 10	— @ —
PLUMS, ₱ bbl	5 50 @10 50	3 50 @ 9 00
GRAPES, ₱ lb	— @ —	3 @ 10
PEANUTS, domestic, ₱ bush	1 25 @ 1 75	1 20 @ 1 50
BEANS—₱ bushel	1 25 @ 3 25	1 25 @ 2 50
Melons, per 100	8 00 @25 00	3 50 @20 00
MUSKMELONS, ₱ bbl	@ —	1 00 @ 1 50
RADISHES, ₱ 100 bun	40 @ 50	— @ —
PEAS—Green, ₱ bush	1 25 @ —	1 35 @ —
" Canada, in bond, ₱ bu	76 @ 78	Nominal.
" ₱ bag	65 @ 1 75	— @ —
POTATOES, new, ₱ bbl	75 @ 1 50	1 25 @ 2 25
" Sweet, "	— @ —	1 50 @ 2 25
BEETS, ₱ 100 bunches	1 00 @ 1 50	1 00 @ 1 25
TURNIPS ₱ bbl	75 @ 1 00	1 25 @ 2 00
BROOM CORN	3½@ 7½	3½@ 7
TOMATOES, ₱ basket	30 @ 1 00	15 @ 30
CAULIFLOWER, ₱ bbl	1 00 @ 5 00	— @ —
SQUASH, ₱ bbl	— @ —	1 00 @ 1 50
CABBAGES—new, ₱ bbl	2 00 @ 6 00	— @ —
ONIONS—₱ bbl	50 @ 1 25	75 @ 1 25
GREEN PEPPERS, ₱ crate	— @ —	— @ 50
GREEN CORN, ₱ 100	60 @ 75	50 @ 1 00
EGG PLANTS, ₱ 100	— @ —	1 00 @ 2 00
LETTUCE, ₱ bbl	50 @ 1 25	50 @ 75
STRING BEANS, ₱ bbl	75 @ 1 00	50 @ 1 00
LIMA BEANS, ₱ bag	— @ —	75 @ 1 00
CUCUMBERS, ₱ 00	75 @ 2 00	25 @ 50
CARROTS, new, ₱ 100 bunches	1 00 @ —	87½@ 1 25
OKRA, ₱ 100	— @ —	10 @ 18

Gold has been up to 100¾, and down to 100¼, closing Sept. at 100¼ as against 100⅛ on Aug. 12; 100⅛ July 13; 100⅞ on June 13; 101⅛ on May 13; 100¼ on April 17; 102½ on Jan. 12; 103 on Dec. 12; 102⅝ on November 12; 103 on October 12; and 103¾ on Sept. 12, 1877 ..Business in Breadstuffs have reached extraordinarily large proportions, during a month the receipts, sales, and shipments of grain, having been in magnitude, beyond precedent. The export operations were mainly in Winter Wheat, and winter wheat products, for French markets; in Oats, and Rye for France and Germany; in Corn for British ports; and in Flour for British, French, West India, South American and Provincial markets. Some important purchases of grain were also made for foreign markets, not usually supplied from this source. As to the activity, nothing more satisfactory could have been hoped for. In the way of prices, however, the opposite was quite generally true. Wheat, Flour, Rye, and Oats having yielded in value, under the increased and urgent offerings, the most serious fall occurring in wheat, especially winter grades of the new crop, which constituted the bulk of arrivals. Spring Wheat of the old crop was unusually scarce, and held with remarkable firmness, while of the new crop, very light receipts were reported, and consequently but little animation. Foreign advices at the close, are decidedly unfavorable to the export movement, which was lighter in volume. The unusually full supply of foreign exchange and consequent depression in rates also worked against shippers.....Provisions have been fairly active; but hog products declined materially.....Cotton has been quoted lower, on a restricted business.....Wool has attracted less attention, and has been quoted weaker in price.....Seeds have been more freely dealt in; rough flax advancing, on moderate offerings; while Timothy receded, on augmented supplies. ....Hay and Straw were in fair request, especially the better qualities, which were held pretty firmly.....Hops have been in very light demand, and quoted depressed and irregular in price.....Tobacco and Naval stores were moderately active and steady....Groceries have been in comparatively brisk demand, and generally stronger.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, from our record kept daily during the year, show at a glance the transactions *for the month ending Sept. 12th*, 1878, and for the corresponding period last year:

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 d's *this* m'th	396,000	8,312,000	5,187,000	534,000	168,000	1,689,000
27 d's *last* m'th	361,000	4,617,000	4,384,000	251,000	294,000	1,218,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 d's *this* m'th	473,000	11,916,000	8,104,000	691,000	53,000	1,936,000
27 d's *last* m'th	458,000	6,259,000	6,411,000	437,000	——	1,507,000

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 days 1878	396,000	8,312,000	5,187,000	534,000	168,000	1,689,000
27 days 1877	315,000	3,104,000	3,736,000	201,000	107,000	1,214,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
27 days 1878	473,000	11,916,000	8,104,000	691,000	53,000	1,936,000
27 days 1877	369,000	5,456,000	5,649,000	374,000	91,000	1,349,000

3. *Exports from New York, Jan. 1, to Sept. 10.*

	Flour. bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Peas.* bush.
'78	1,680,357	38,755,334	20,597,801	2,833,828	1,516,207	2,560,519	309,727
'77	881,577	6,927,843	17,381,815	1,184,554	771,685	111,666	180,776
'76	1,337,000	18,659,000	11,337,000	682,000	28,100	453,200	460,200
'75	1,282,727	18,140,047	8,387,632	152,333	225	88,472	235,865
'74	1,529,415	24,462,895	15,829,600	553,050	3,320	86,896	272,105
'73	966,067	12,166,224	9,813,745	551,093	19,226	26,591	91,270

4. *Stock of grain in store at New York.*

	Wheat. bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Malt.* bush.
Sep. 10, 1878	1,162,808	1,113,458	71,886	202,774	697,668	131,841
Aug. 12, '78	1,126,813	598,736	62,647	203,224	472,366	137,003
July 11, '78	1,591,132	720,784	138,872	174,000	207,769	668,075
May 7, 1878	748,196	263,020	75,229	207,576	570,298	258,327
Apr. 15, 1878	1,370,081	541,648	106,375	396,861	857,273	253,424
Jan. 10, 1878	2,586,715	105,909	286,333	913,898	1,687,985	321,474
Dec. 10, 1877	2,841,982	1,721,229	399,077	864,787	1,879,052	358,849
Nov. 5, 1877	984,374	2,643,502	166,949	368,429	1,770,759	328,388
May 7, 1877	761,686	468,809	193,016	174,575	347,881	291,654
Jan. 8, 1877	3,668,010	3,077,504	341,750	905,615	1,088,104	425,406
Dec. 11, 1876	3,110,283	3,385,554	218,841	873,210	1,182,322	512,041

5. *Tide-water Receipts at Albany, from opening of navigation to Sept. 7:*

	Flour. bbls.	*Wheat.* bush.	*Corn.* bush.	*Rye.* bush.	*Barley.* bush.	*Oats.* bush.	*Malt.* bush.
1878	3,400	11,805,000	14,603,000	856,000	341,000	2,69,000	301,000
1877	6,500	2,148,800	14,182,600	393,600	434,800	1,188,200	437,900
1876	16,400	7,928,200	4,879,400	343,600	122,700	2,125,700	469,700
1875	54,800	11,262,200	3,693,700	83,500	32,900	1,155,600	533,100

New York Live-Stock Markets.

RECEIPTS.

WEEK ENDING	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Aug. 19	11,677	51	4,289	27,346	26,920
Aug. 26	9,896	77	3,650	23,191	25,892
Sept. 2	12,382	97	3,723	31,732	24,902
Sept. 9	12,077	39	3,054	31,926	26,316
Total for 4 Weeks	46,032	264	14,707	114,995	104,030
do. *for prev. 4 Weeks*	43,854	337	14,793	115,668	84,418

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	11,508	66	3,677	28,749	26,007
do. do. *last Month*	10,963	84	3,398	28,917	21,111
do. do. *prev's Month*	10,143	54	4,202	26,384	27,690

Beeves.—Trade was slow and dull at the beginning of the month's business. Heavy receipts, unsold stock left over, and a light demand, together broke the market, and prices gave way. An improvement in the foreign export trade, with lighter receipts, helped to restore business somewhat, but it has dragged and fluctuated all through the month At the close, low grade stock fell off fully ½c. ₱ lb., but good steers advanced quite as much, and so kept up the average. The closing prices were 7½c. ₱ lb for low grade stock of 55 lbs. to the cwt.; 7¾c. to 8¾c. for fair steers of 55 to 56 lbs.; 9¼@10c. for prime steers of 56 lbs., and 10@10½c. for extra, estimated at 57 to 58 lbs., dressed, to the cwt. live weight.

The prices for the past four weeks were as follows:

WEEK ENDING	*Range.*	*Large Sales.*	*Aver.*
Aug. 19	6¼@10¼c.	8 @10 c.	8¾c.
Aug. 26	7¼@10¾c.	8 @10 c.	9 c.
Sept. 2	7 @10½c.	8 @10 c.	9 c.
Sept. 9	7¼@10½c.	8 @10 c.	9 c.

Cows.—Little business has been done in cows; the demand is light and receipts have been fully up to the wants of purchasers. At the close of our report there was more inquiry which led dealers to advance prices a few dollars per head. Sales have been made from $35 to $50 per head, according to quality.

Calves.—The market has been firm and active through the month, prices closing without much change at 3@3¼c. for grassers, 3½ to 3¾c. for buttermilk, 4@4½c. for fed, and 5@7c. for veals. The pick of the lot went for 7¼c. ₱ lb live weight.

Sheep.—Fair quality sheep have been firm and in demand: poor stock have been dull and neglected. Sheep good enough for export have brought 5@5¼c. ₱ lb; the range being from 4@4¼c. for prime stock. Lambs sold for 5¼@5¾c. ₱ lb; all live weight. Good Store Ewes from Ohio and Western Pa. sold for 4¼c. ₱ lb for 82 to 84 lbs.

Swine.—Live hogs have been steady at 4¼@4¾c. for good; rough stock sold for 3¼c. ₱ lb. City dressed active at 5¼@6c. ₱ lb. Light pigs in good demand at 6c.

The Horse Market.—But little has been doing in horses. A few droves of thin rough animals have come in, and sold for an average of $125 per head. A good work-horse, 9 years old, of 1,150 lbs., brought $130; a fine black mare, well built, sold for $150. Some fine French Stallions have been imported; but this business promises to fall off in the future. As with other imported stock, our home-bred animals are surpassing them, and the tide is full, to turn the other way in all probability before long. 31 light carriage-horses went from Canada through New York to Glasgow last week.

Prices of Feed.

Bran, per ton	$18.00@$20.00
Middlings, per ton	19.00@ 21.00
Ground Feed, per ton	15.00@ 21.00
Linseed-oil-cake, western, per ton	44.00@ 47.00
Cotton-seed-cake, per ton	25.50@ 40.00
Chandler's Scraps, per lb	3@ 4

Prices of Fertilizers.

No. 1. Peruv. Guano 10 p. ct. ammonia, standard, ₱ ton	$56.50
do. do. Lobos, do. do. do	47.50
do. do. guaranteed, ₱ ton, cargo H	56.00
do do. rectified, per ton, 9.50 p. c.	69.00
do. do. do. do. 8.40 p. c.	51.00
Soluble Pacific Guano, ₱ ton	45.00
Excelsior Fertilizer Works, Fine Ground Raw Bone	55.00
Mapes' Complete Manure (Ville formula) p. 1,000 lbs	26.14
do. do. do. Grain and Grass, ₱ 1,000 lbs.	25.00
do. Fruit and Vine Manure, do.	17.50
do. Bone, strictly pure, meal ....per ton.	42.00
do. do. do. extra fine.... do.	40.00
do. do. do. fine..... do.	38.00
do. do. do. medium..... do.	36.00
do. do. do. dissolved..... do.	42.00
Stockbridge Corn Manure, per acre	20.00
" Potato do do	10.00
" Tobacco do do	50.00
" Rye do do	10.00
" Wheat do do	15.00
Bowker's Hill and Drill Fertilizer, per ton	45.00
Gypsum, Nova Scotia, ground, per ton	8.00
Nitrate of Potash (95 per cent.), per lb	9 @9½c.
Sulphate of Potash (potash 44 per cent) per lb	3½@4 c.
do. do. (potash 27½ per cent) per lb	1¾@2 c.
German Potash Salts (potash 12 to 15 p. c. p. ton	$15.00@18.00
Muriate of Potash (potash 50 per cent), per lb	2 @2¼c.
Nitrate of Soda, per lb	4 c.@4¼c
Sulphate of Ammonia (25 per cent.), per lb	4½c.@5 c.
Dried Blood (ammonia 14 per cent) per ton	$45.00@50.00

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of room elsewhere.

One of the Best Charities, of many very good ones organized in this city the present year, was that of the "N. Y. Evening Post," called the "Fresh Air Fund." Donations were solicited and received to the amount of $2,980.29. With this sum, 1,100 children, about 300 per week, were gathered from poor families and taken to the country, chiefly to Orange, Delaware, and Dutchess Co.'s, N. Y., where the people received them cheerfully to their homes, and cared for them for two weeks or so, giving them plenty of good milk and other food, and the range of the farms. This experience of country life—many of them having never even seen the country before—was the best, and most invigorating, medicine that could be supplied. The change in appearance, in vigor, in views and aims, and aspirations for the future, wrought in hundreds of the little ones, was wonderful. Those farmers and others who received these children, and those who supplied the funds to send them, have done a good work, and can enjoy the satisfaction of having done it; and they have the approval of Him who took the little ones in His arms and blessed them, and who said, "Ye have done it unto Me."

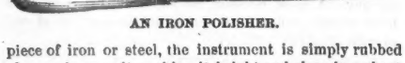
Plants, Fruits, Insects, and others matters are sent us *by mail*, concerning which we have no information by letter or otherwise. We have now several parcels waiting for something to turn up that may give a clue to the sender. Please recollect that nothing that is likely to injure the contents of the mail will be forwarded; also that the parcel must be put up in such a manner that its contents may be readily examined. Wooden boxes, with the cover fastened with nails; cloth bags sewed up, and pasted or gummed wrappers, are charged letter postage.

An International Dairy Fair, under the joint auspices of the various State Dairy Associations, is to be held at Gilmore's Garden, New York City, beginning Wednesday, Dec. 4th, next. This fair is the outgrowth of the National and Northwestern Dairy Fair, held in Chicago a year ago, the great success of which led to the holding of this, an International Dairy Fair, that should attract visitors from foreign countries to the great export market of American butter and cheese. Col. R. M. Littler, of Davenport, Iowa, is Secretary of the Association having this exhibition in charge. It is proposed to exhibit not only butter and cheese, but also

all kinds of dairy implements, designs and models of barns, milk-houses, creameries, cheese-factories, etc. The exhibition of specimens of typical dairy stock, from various herds, is under consideration, but is not yet decided upon. The Secretary reports a very favorable response from all sections of this country, and from Europe, and the prospect is good for a successful exhibition. The purpose of the fair is to stimulate this industry, and show our dairymen its immense possibilities. It is estimated that the product from the cows of the country exceeds five hundred million dollars annually. Recently in a single day 42,000 boxes of cheese were shipped to Liverpool for the European market, and the exports of butter from the U. S., during the year ending June 30th, 1878, amounted to 21,834,141 lbs., and a value of $3,930,849; the previous year to 21,527,242 lbs., valued at $4,424,616. Cheese for the corresponding periods amounted to 123,783,736 lbs., having a value of $14,103,529 in 1878; and 107,364,666 lbs. in 1877, valued at $12,700,627, which is a rapid increase, especially for butter, over previous years. Yet the trade is but partially developed. If the proposed fair shall help dairymen to appreciate this fact, and teach them how to meet the increasing demand with better products, it will result in great benefit to the industry and to the country.

A Strange Way.—A letter comes and we read: "Will you please give me the name of the enclosed fruit."—As the letter contains nothing, we propose to write to the sender that he has forgotten to inclose his specimen, but on turning over the leaf find it signed "Monmouth."—Let us sum up the result of this utterly useless custom of omitting the name in writing to an Editor. "Monmouth" wastes paper, envelop, stamp, and time occupied in writing; he has a tree of which he knows but a single one, he wishes to know the name, but carefully hides himself in "Monmouth," so that we cannot reach him. Our interest in so rare a tree is excited; we too would know what it is, but are unable to take another step. We are put to the trouble of writing this item, which the person in question will not see until October, and quite too late to repair the omission.

Cleaning and Burnishing Iron.—Mr. E. N. Jennings, of Cornwall, N. Y., an excellent horse trainer, recently showed us a contrivance in use in the Prussian army, for polishing the bits, stirrups, and other parts of the harness or trappings made of iron. It is simply a piece of hardened steel, 4 or 5 inches long, inserted in a handle, as shown in the engraving. The cross section is an oval; or, if round, it would probably do just as good work. It is made of ⅜-inch steel, with the surface smooth and polished. To brighten a tarnished or rusty



AN IRON POLISHER.

piece of iron or steel, the instrument is simply rubbed vigorously upon it, making it bright and clean in a short time. Where there are facilities for the work, an old, half-round file may be readily ground and polished to form a similar burnisher.

Invitations to Fairs, have, as usual, been received from every section by the Editors. But the number has been so large, and our work so pressing, that we have been compelled to decline all, save a few to the largest, or more representative of these exhibitions. We thank the many friends who have thus shown their interest in the *American Agriculturist*. We look upon these fairs as among the best experiences of the farmer's year; and we preach according to our practice, when we advise every farmer to attend all he can of them.

Is a Leg of Mutton a Sail?—"H. C. W.," of Westport, Ct., asks if it is "against the law to chase wild ducks in a row-boat with a 'leg-of-mutton sail,' the law prohibiting any vessel propelled by steam or sails." Now, if a "leg-of-mutton sail," is a sail, then it must be against the law to chase ducks with a boat so propelled. The important point is, whether "a leg of mutton" is a sail. The law evidently intends that no means shall be used to propel a boat, which will beat the ducks; hence, we suggest that you try the "leg-of-mutton" on the ducks, and if you catch them, to conclude it is a sail; if you do not, then keep on chasing them. Yet, the law only mentions "chasing" ducks, not catching them, so that won't work. Suppose, as a last resort, a convention of leg-of-mutton-sailors and ducks, *i. e.*, of chasers and chased, be called to decide whether a "leg-of-mutton" is a sail. If that does not decide the point, ask us again.

Difficulty with Plums.—"O.," Homer, N. Y., has trees which bloom and set full, but an insect stings the fruit; he has tried lime and ashes with no effect; thinks that bottles of sweetened water have done some good, but he wants a "cure." It is the old story over again of the Curculio, which we have told so many times. Yet it is still new to some. The bottles of sweetened water may have caught many insects, but probably few of the guilty ones. Though innumerable experiments have been made, no application has been found to prevent the attacks of the curculio. Where this insect abounds, plums cannot be had, unless the trees are shaken, after the fruit sets, at first every morning, and as often thereafter as the number of insects caught shows the necessity for it. In the morning the insects are torpid; a sudden jarring of the tree will cause them to drop; they are caught upon a cloth spread for the purpose, and killed. This must be done, or no plums will ripen.

Covering Strawberries.—"C. H. S.," Sussex Co., N. J., protects his vines in winter by covering the ground between the rows with corn-stalks, bringing them close to the vines, and lays bean-poles across, to keep the stalks in place. This has long been followed in some of the Western States, and we give it now, to remind those who have not other material at hand, that corn-stalks will answer the purpose.

Surfeit in a Horse.—"P. L.," York, Pa. Horses are subject to a skin disease known as surfeit. This appears generally in the spring as small lumps, which break and exude a watery matter and then become covered with scabs. The irritation causes the animals to bite its skin or roll upon the ground, and in your case it lay and rolled in the spring to allay the itching which existed previously. This action most probably was not the origin of the disease, although a sudden chill may cause it. The treatment is to give one ounce each of sulphur and cream of tartar daily in the food for a week or ten days, repeating for another period if needed; and to wash the skin with water slightly diluted with sulphuric acid. One drachm of the acid to a pailful of water will be sufficient.

Weeds, Briers, and Brush, in Highways.—*The N. Y. Law*, passed March 11th, 1878, reads:—§1.—It shall be the duty of every person, or corporation, owning, or occupying under a lease for one or more years, any cultivated or enclosed lands abutting upon any highway, to cause all noxious weeds, briers, and brush, growing upon said lands, within the bounds of said highway, to be cut or destroyed between the fifteenth day of June and the first day of July, and between the fifteenth day of August and the first day of September, in each and every year. But Boards of Supervisors may fix a different period, or periods, for such cutting or destruction in their respective counties. This section shall not be construed to restrict any of the powers heretofore conferred upon Boards of Supervisors. —§2.—It shall be unlawful for any person to place, or cause to be placed, any noxious weeds, or the seeds of such weeds, within the bounds of any public highway.—§3.—Any willful neglect or refusal to comply with the provisions of section one of this act, or any willful violation of section two of this act, shall subject the person or corporation so offending to a penalty of ten dollars and costs in and for each road district in which any of these provisions shall be violated, to be sued for by the commissioner or commissioners of highways of the town wherein said road districts shall be situated, or by the street commissioner of villages, when such village constitutes a separate road district, and recovered before any Justice of the Peace having jurisdiction; said fine, when collected, to be paid into the highway fund of such town or village.—§4.—It shall be the duty of commissioners of highways of towns, or street commissioner of villages to prosecute every person or corporation violating any of the provisions of this act in their respective towns or villages, and to include in each annual report of such commissioners a detailed statement of all fines recovered under the provisions of this act.

Plaster on Wheat.—"A. S.," Blair Co., Pa., says we recommend certain artificial fertilizers on wheat, but that they cost too much, and asks if it would not be a good plan to sow plaster after the wheat is sown. We have advised the use of fertilizers, because, if used intelligently, they increase the crop more than enough to pay the extra cost, and thus are profitable. Plaster (which is a fertilizer), may frequently help the crop somewhat, but it contains only lime and sulphuric acid, and cannot supply nitrogen, phosphoric acid, and potash, which are generally most useful to wheat, particularly the first two. Plaster is, on very many soils, very helpful to clover.

The Best Fowls for Winter Laying.—"F. G.," Fort Erie, N. Y. The Light Brahma has the best reputation for the production of eggs in the winter. It is a matter of doubt if this breed is not surpassed by the Leghorns. But the Brahma has other good points which the Leghorn has not, and this probably gives the former the advantage.

Preparing a Heifer for Exhibition.—"J. W. P.," Marshall, Texas It is hardly possible to bring a very young animal into what is called "show condition" by feeding. If overfed it becomes sickly, poor, and miserable; its digestive organs are unable to dissolve the excess which goes into the intestines in a crude form, and causes disease. A calf of 10 weeks old can be brought into good healthy condition by feeding about 6 quarts of new milk daily in 3 meals of 2 quarts each, and giving about a pint of mixed wheat, bran, linseed, and oatmeal between times. A little fine hay or fresh clover may be added. With this feed the animal will not become fat, but will appear sleek, lively, and healthy.

North American Ayrshire Register, Vol. III, is received from its editors, E. L. and J. N. Sturtevant, South Framingham, Mass. This is an independent Herd-book, in which every animal is traced to importation, being in opposition to that of the "regular" Herd-book of the Ayrshire Breeder's Association, which is said to be less strict in its requirements of the animals admitted for record. The N. A. A. R. has the merit, that all who refer to it may be reasonably sure of the purity of the pedigree of the animals found therein.

Cooking for Milch Cows.—"A. T.," Milltown, N. B. Whether or not it will pay to cook the feed for 30 cows, is a matter of figuring; the value of milk and the cost of labor being the chief items in the calculation. There is a saving in the quantity of food used which will go towards the cost of the apparatus and the feed. If a man can be procured at one dollar per day, and the extra milk gained will be worth more than that amount, there will be a profit in it. One man can prepare the food for 30 cows, and have half his time to spare for other work.

A Combined Latch and Hasp, affording double security, is represented in the engravings. The

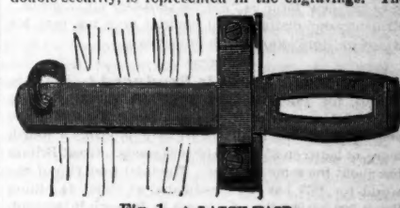


Fig. 1—A LATCH-HASP.

hasp is made to combine the convenience of the latch, by simply putting a strap over it, to hold it in place, as shown in figure 1. The staple (fig. 2) has a raised portion on each side, to catch and hold the latch. By this simple device, a door to a box-stall, or other door or gate, which it is often desired to close quickly, may be shut, and firmly fastened without delay; additional security may be obtained by slipping a pin into the curve of the staple, as seen in figure 2.

Fig. 2.—THE STAPLE-CATCH.

A Cheap Boat.—"R. W.," of Russellville, Ky., will find a description of a cheap boat, "suitable for fishing on mill ponds," or similar purposes, in the *American Agriculturist* for November, 1876.

Can a New Breed of Fowls be Produced?—"M. M." There is no doubt of the possibility of producing a distinct breed of fowls by selecting some good common hens and a cock, and carefully selecting and breeding the progeny closely in-and-in so long as the process is successful, The Plymouth Rocks are an instance of this, and although from a variety of bloods, the breed, in about 6 or 8 years only, has become quite fixed and reproduces itself very true to feather and character in the hands of skillful and patient breeders.

Orchard Treatment.—"B. F. H.," Fairfax, Iowa, understands exactly what he wishes to ask, and knows how to put it in the clearest possible manner. Some would cover one or two pages in order to express the following: "Is it desirable to let hogs run in an apple orchard to keep the grass down? (1)—or would sheep be better? (2)—or still better to mow? (3).—*Ans.* (1). Yes, they will convert the grass into manure, and by eating fallen fruit, greatly diminish the insect crop. (2). No, swine are preferable. (3). No.

Visiting Farms.—A professional duty with every good farmer, in the early fall, is to visit some of the best farms in his county or State, and take a few field lessons in agriculture. The illustrated farm journal is very good, and pays abundantly. But there is nothing like a morning's talk with a live farmer among his stock and crops to stir up one's pure mind by way of remembrance, and put him upon improvements at home. If you have been thinking for years of draining a field, go to some farmer who has a job of draining on hand, or completed, and study the process and its results. Such visits are not only a needed recreation that a busy farmer is fairly entitled to, but profitable in many ways. They give new facts, show one improved implements and new methods of culture, and help to economize labor and make money. Think twice before saying you can not afford the time. Certainly you can not afford to do without these visits.

An Honor Well Bestowed.—The French Academy of Sciences at its meeting on July 29th last, elected our friend and contributor, Prof. Asa Gray, of Harvard, a corresponding member in the botanical section. The number of correspondents in all parts of the world is limited to 100, and when a vacancy occurs through death, there is an active competition on the part of the members of the Academy to secure the honor for their friends. It should be gratifying to Americans that the choice has fallen upon our first Botanist, and the fact that he received 32 out of 40 votes gives us a high opinion of the eminent good sense of the Academicians.

Eulalia Japonica.—M. Carriere has found a mare's nest. He has discovered that the plant sold as *Eulalia Japonica* is not a type, but a variety with striped leaves, as seeds from this have given plants with green leaves; he adds, moreover, that we can be sure that it will be the same with *Eulalia Zebrina*. As we were the first to describe and figure both these grasses, and never had any idea that they were "types" or anything but varieties of a plant normally green, this seems rather strange, coming from the editor of the "*Revue Horticole*," especially as he does not seem aware of the fact that *E. Japonica*, the type, is a recognized and described species (see Mem. Acad. St. Petnle, 1852—Trinin's Andropogineorum, p. 333), and as recently as December, 1876, we gave the new form as "*Eulalia Japonica* var. *Zebrina*." Evidently our distinguished confrier does not read his *American Agriculturist* with proper care.

How Much Wool is Produced?—The U. S. Census for 1870, reported 28,477,951 sheep, yielding 100,102,387 pounds of wool,—an average of about 3 lbs. and 9 ozs. per head. There are now probably a fourth more, or between 35 and 36,000,000 sheep. Great Britain has about the same number. The total wool clip of the world for 1877 has been estimated at about 1¼ billion lbs. (1,500,000,000 lbs.), or over 1 lb. for each inhabitant.

Coal Mined in the World.—For the Paris Exhibition, a statement was prepared by John Pechar, of Teplitz, Germany, from which we condense the following striking, and very interesting figures, giving the estimated total production of coal for the year, 1876, throughout the world:

	Pounds.	*Tons.*	*Per c't.*
In Great Britain	298,953,587,850=	149,476,769	47.4
United States	106,588,919,613=	53,294,460	16.9
Germany	106,588,919,613=	53,294,460	16.9
France	37,211,516,314=	18,605,758	5.9
Belgium	31,535,183,317=	15,767,591	5.0
Austro-Hungary	29,643,072,318=	14,821,536	4.7
All of Asia	9,174,480,000=	4,587,240	1.5
Rest of the World	11,008,037,327=	5,504,019	1.7
Total	630,703,666,352=	315,351,833	100.0

[We reckon by the American ton of 2,000 lbs., though at the mines, and in large dealings here, a ton of coal is 2,240 lbs., the same as everywhere and for everything in Great Britain. The metric ton in France is 2,204 lbs.] It will be noted that nearly half (47.4 per cent) is mined in Great Britain; that the United States and Germany are each credited with the same amount, about one-sixth; that little Belgium nearly equals France, and yields more than three times as much as all of Asia. The annual product for all the world is about 500 lbs. for each inhabitant; for the United States, it is 2,422 lbs. for *each* of 44 million inhabitants.

The Iron Product of the World, for 1876, is given by Mr. Pechar (above named), as 31,571,460,276 lbs., or 15,785,730 tons of 2,000 lbs. The coal mined is about 20 times the weight of pig iron produced. The *ratio* of production in the leading iron producing countries is nearly as follows: Great Britain, 46½; United States, 17; Germany, 3½; France, 10¹/₅; Belgium, 3²/₅; Russia, 3; Austro-Hungary, 2⁴/₅; Sweden, 2½. (The iron product of the United States for 1876 (5,330,719,707 lbs.), or about 125 lbs. for every inhabitant.... Of *Bessemer Steel*, the product for 1876, is stated at 4,646,873,336 lbs., or 2,323,436 tons, of which one-fourth was made in the United States, a little over one-third in Great Britain, not quite one-fifth in Germany, and one-tenth in France. The total steel made in 1876 would lay 22,116 miles of railway track, allowing 20 lbs. to the foot of rail. The present rate of production would put steel rails upon all the railways in the world in less than ten years.

Glue Scrap.—"J. L. T.," Butler Co., O. By composting glue scrap with barnyard-manure, for three to six months, an excellent fertilizer will be the result, as the material is rich in nitrogen. It is hardly comparable to stable-manure, for though it has more of the valuable ingredient, nitrogen, it contains little potash or phosphates.

Wheat Bran for use as a fertilizer, is asked about by several readers of the *American Agriculturist*. Of the essential ingredients of a fertilizer, wheat bran contains about 2½ per cent of nitrogen, 1½ per cent of potash, and 2½ per cent of phosphoric acid, which, together, give a ton of the bran a value of full $15.00 as a fertilizer—reckoning the nitrogen at 20 cents per lb., phosphoric acid at 10 cents, and potash at 7 cents—which are the value of these ingredients in commercial fertilizers. Rye bran has about the same value for use as a fertilizer. Where bran is cheap and abundant, it is sometimes applied to the soil as a manure, and, it is said, with quite favorable results. That this is a wasteful practice, is proven by the experiments of Lawes and Gilbert, who found that the manure resulting from the feeding of a certain amount of fodder to mature animals, contained nearly as much of the fertilizing ingredients as before passing through the animal; the reason being that the processes of digestion remove for fat forming only those portions which have little value as manure. The simple lesson, then, is to feed the bran to fattening animals, thus making it serve the double purposes of producing beef, and supplying good manure.

Our Wonderful Petroleum.—Twenty years ago this article was little known. The first artificial well was sunk in August, 1859, we believe. Now there is an annual production in this country of about 15,000,000 *barrels*, and more than sixty million dollars' worth are exported to other countries annually—our exports ranging in importance, according to valuation, 1st, Cotton; 2d, Flour and Grain; 3d, Hog products (lard, hams, and salt pork); and 4th, Petroleum. There are more than ten thousand oil wells flowing or being sunk; and probably over one hundred millions of dollars invested in the business, in one way and another. Fifteen million barrels (40 gallons to a barrel) of this earth-yielded oil, would fill 9,600,000,000 lamps holding half a pint each, or about seven such lamps for every man, woman, and child on our globe. If these lamps were equally distributed, so that every four persons could have one, and allow half a pint of oil to burn three evenings on an average (short nights included), the 15 million barrels of oil would light up the whole human race for a period of three months, or a fourth of the population of the globe for a whole year! All this has *come to light*, from the bowels of the earth in less than twenty years, during which time we have not only used all the petroleum we have wanted ourselves, but have sent to other lands nearly Five Hundred Million dollars' worth, at the low Custom-house valuation. What other stores of light and of comfort, lie yet undiscovered in this wonderful world of ours!

Expenses of the United States Government since its Foundation.—Recent investigations show the total expenditures for all purposes by the United States General Government, from its foundation up to July 1, 1876, to have been $15,516,996,680,—almost exactly half of the estimated value of real and personal property by the Census of 1870 ($30,068,518,507). The smallest expenses were in 1793, being about 7½ million dollars; the largest in the year ending July 1, 1865, when they were 1,906 *million* dollars. The $15,516,996,680, if in dollar greenbacks (3½×7½ inches, or 23 square inches each,) would carpet or cover 468,000 acres, or 730 square miles, or a little over one-third of the State of Delaware, or nearly one-tenth of Massachusetts. Some of the mathematical readers of the *American Agriculturist* may reckon how many acres would be covered if the dollars were in the new silver currency, touching at their edges; also how many tons of silver it would take, at 412½ grains to the dollar, and 7,000 grains to the pound avordupois; how many teams to draw it, etc., etc.

Cyprus—Its Size.—Recent treaties bring into prominence the Island of Cyprus, in the Eastern Mediterranean, which has been taken possession of by Great Britain. Its area is 3,673 square miles, or 247 square miles greater than the combined area of Delaware (2,120), and Rhode Island (1,306); or about three-fourths the size of our next smallest State, Connecticut (4,750 square miles). The population of Cyprus is about 200,000, or not two-fifths of Conn. (537,454, in 1870), and a little larger than that of Florida (187,748, in 1870). It is nearly 100 miles west from the coast of Syria, and 300 miles from the entrance to the Suez Canal. The name Cyprus is from the Greek word *cuprum* (copper), so named from the ancient copper mines on the island.

Cistern without Stone or Brick.—"B. K. W.," Bay St. Louis, Miss. A cistern often may be constructed in the ground where the earth is clay, provided the inside is plastered with hydraulic cement; though of course such a cistern would not last so long as one made of stone or brick. At several places in the vicinity of New York most of the cisterns have no brick walls, but a heavy coat of hydraulic cement mortar is put directly upon the compact earth at the sides and on the bottom. The top is covered two feet below the surface, with locust poles and flat stones, leaving a man-hole at the center carried up by planks a little above the ground. They are often arched over with bricks when the soil is compact enough to support the arch, and many soils will do this. The top of the cistern is made wider, three feet down, a coat of cement mortar put on—with flat stones if plentiful—and the brick convex arch stands upon this.

Pennsylvania Corn.—"J. C. P.," N. Orleans, La. The variety of corn grown in Pennsylvania having 32 rows upon the ear, is the Gourd Seed Corn. It is usually planted in hills 4 feet apart, sometimes more; 2 stalks are left in the hill, and generally but one ear or one large and one small one are produced upon each stalk. The stalks are not so large as those of the Southern or Western corn. Good farmers in Pennsylvania grow from 80 to 100 bushels of this corn to the acre. The manner of cultivation is to plow under a very heavy sod well top-dressed with barn-yard manure, and to use 300 lbs. of superphosphate per acre besides.

Abortive Ears in Corn.—"D." We do not yet know the possibilities of the corn-plant. Five fair sized ears to a stalk is not uncommon. We are trying this year to grow more ears by extra fertilizing and pruning. There is no doubt that if the soil is made sufficiently rich, and the plants have room enough, and if they are *trained* to it by continued skillful selection, pruning, and cultivation, every abortive ear can be made productive. This can only be accomplished by long and patient work; it can not be done by a spurt or accident. The removal of abortive ears, and suckers, will doubtless throw more strength into the others. You may experiment hopefully in this direction.

Gilt-edged Butter.—"G. E. R.," and others. We can not give the names of any persons purchasing gilt-edged butter. The number of customers' for butter at a dollar per pound, is very limited, and we doubt if those persons who sell butter at very high prices make a corresponding profit, considering the expenses incurred. Probably the best way to get good prices would be to put up first-class butter in neat packages, marked with the maker's name, and sell it through a commission agent for a time until a reputation is gained, and then gradually work into such a connection as may be deserved. No extra price can be procured except for a stated supply at all seasons, and of an unvaryingly good quality.

Cows Eating Wood, Bones, etc.—"C. M. F.," Trenton, N. J. When cattle eat bones, leather, wood, etc., it indicates a lack of phosphate of lime in their food, which they require to supply bone material and wastes of the system, and the 100 lbs. or more which every cow requires in a year for her milk. Lack of this in the food, creates a morbid appetite, which is only partially satisfied by gnawing at such objects. Bone flour may be fed in its grain to each animal at the rate of a teaspoonful per day. A good dressing of superphosphate or bone-meal on the upland pastures, will stimulate the growth of such plants as furnish the missing ingredients.

Okra Soup.—"Mrs. J. J.," Clark Co., Va., referring to a note upon the uses of Okra, in August *American Agriculturist*, says that when the sliced Okra is added to the soup: "The mucilage in the young pods will create a foam that is almost impossible to keep under control. To obviate this, slice the pods into sufficient water to cover them; in an hour or more, squeeze out with the hands into a skillet or shallow pan containing a very little lard, and fry until the gummy matter is killed. A little observation will soon determine that fact. Be careful not to brown or scorch. Turn the fried Okra into the soup kettle and let it boil at least an hour in the soup, as it should be perfectly soft when served. Add a generous amount of tomatoes to the soup, as they are a decided improvement, and "Okra Soup," according to Southern usage, should be quite thick. As in all vegetable soups, I think it an advantage not to have the stock too rich. When made with chicken as a basis, a *small* piece of ham or bacon improves the flavor. In using the *dried* "Okra" soak several hours in tepid water, and then fry as directed for the green. It requires more boiling in the soup than the fresh, and, although not so finely flavored, still is a valuable addition to our winter soup vegetables."

"Compulsory Education."—To "Individual Rights." It is out of the scope of the *American Agriculturist* to discuss with you the "injustice of compelling education arbitrarily," but here is a thought or two. No parent has a right to send into the community a child with an infectious disease, or one viciously inclined. The State has to take care of such cases for the protection of the people at large. Ignorance is the parent of vice. The foundation of power, of civil rights, is with the mass of citizens. Education refines the feelings, strengthens the moral powers, enables one to think and judge better, improves the understanding, and makes a better citizen. Is it not the duty of the State to require what will lessen its care and expense for the vicious; to compel an education that will improve its own condition, its source of power, its safety from crime and revolution?

While this education may and should be left mainly to the parent, if the parent neglects to give it to the child through ignorance, or carelessness, or inability, should not the State provide and compel it—not only for its own protection, safety, and best good, but in justice to the child itself? It seems to us that every child should have a knowledge extending to Reading, Writing, Arithmetic, Geography, and the History of our own country. Prussia adds to these requirements, and well, we think, Drawing, Music, and Gymnastics. It takes care that every child has these acquirements from the parent if they will and can supply them; otherwise the State furnishes them, and sees to it that they are obtained by every child not an invalid or idiot.

The New York State Fair, held at Elmira, Sept. 9-13, was, taken as a whole, as good an agricultural fair as we ever attended, and it was said to quite equal any ever held by this leading Society. A marked feature of these exhibitions is the absence of horse trotting, and the fact that nearly a fourth more money is offered in premiums for cattle than for horses. The large attendance upon, and general success of the exhibitions of this Society, is a conclusive argument in favor of fairs without the "agricultural hoss trot." The show of farm machines was especially full and varied; among these we recognized many well tried implements, as well as some new ones. The horticultural department was creditable to the locality, though naturally smaller than usually seen at Rochester; the specimens of fruit and flowers on the stands were excellent of their kinds. In the stock departments, the show of stallions was the finest the Society has ever had, and the cattle and sheep exhibit was superior, particularly the latter—not so much in numbers, as for excellence and variety. An interesting feature was the three Grange wagons, which vied with each other in showing the products of the farm, in field, stable, and household. These were great platforms on wheels, about 30 feet long, by 8 feet wide, with standards and shelves erected to hold the fruits and vegetables and other decorations of grasses, grains, etc. One wagon had open cupboards in the sides, showing viands for the farmer's table, and outside of the wheels, under the edge of the platform, were compartments containing a calf, a sheep, pigs, and the several kinds of poultry. As these gaily decorated vehicles moved along the track, they might have been taken for a procession of the olden time in honor of Ceres and Pomona. The success of this Society is largely due to the energetic and disinterested efforts of Secretary Harrison and the other officers, to whose kind attentions as well as those of the editors of the "Husbandman," which so well represents the farmers of that section, are we indebted for much of the pleasure of our visit.

Basket Items continued on page 393.

Sundry Humbugs.

If any of our readers have noticed that this column shows a certain amount of repetition, they have discovered that of which we are well aware, but can not readily avoid. It seems to make no difference how plainly we may warn people against a certain scheme. There are many who do not seem to notice what is said, and we are constantly in receipt of letters asking about the very thing that we have exposed in full but a few months before: hence we must either repeat our warning or appear to disregard a large number of earnest inquirers. Some humbugs are so persistent, and so often asked about, that we have sometimes thought it might be well if we were to keep certain lines standing in large type; they would read something like this:

FARMERS, BEWARE HOW YOU BECOME AGENTS.

FARMERS, BE CAREFUL WHAT YOU SIGN.

ALL LOTTERIES ARE FRAUDS.

LET ALL WALL STREET SCHEMES ALONE.

BEWARE OF ADJUSTERS OF CLAIMS.

DON'T INVEST IN ANY SECRET SERVICE COMPANY.

IF YOU ARE TOLD THAT YOU HAVE DRAWN AN "ART" PICTURE, DON'T SEND FOR IT.

IF YOU READ THE ADVERTISEMENT OF A DOCTOR, DO NOT ASK US ABOUT HIM, ETC., ETC.

We have given special and minute attention to these very matters again and again—yet, here is a pile of letters asking about these very things, and others, as if they were fresh, and had turned up now for the first time..... Will our readers please understand that we can not make exceptions. For example, we feel sure that there is no more risky business, for even those who understand it, or think they do, than speculating on the stock market, an opinion with which every solid business man will agree. When we warn our readers against

WALL STREET SCHEMES,

we mean *all*, of every kind and stripe. Some who send out circulars have much skill in "the art of putting things," and they show very plainly—on paper—that an investment must pay. Those who receive these circulars are captivated by their plausibility, but, being cautious, they write to ask if we do not except so and so from our general warning. It is some trouble to write a brief negative reply, yet we do this, rather than to appear impolite. It would save the writers, as well as ourselves, both time and trouble, if they would accept, once for all, the statement that we can make *no exceptions*; it is not a question altogether of the persons concerned in it, though some of these are "shaky"—but the nature of the business is such that all engaged in it are looked upon with suspicion. If the cashier or bookkeeper of any business house of high standing, or in any bank, were known to be "dabbling in stocks," he would lose his place. When a "breach of trust," or "defalcation," or other sugar-coated form of robbery takes place, the first question concerning the defaulter is, "Did he operate on the street?"—And it is oftener than otherwise found that this form of gambling is responsible for the ruin of these persons.....The same may be said of

ADVERTISING DOCTORS.

As we would not employ a physician who advertises his cures and sets forth his own ability, we warn others against such, as we regard them unsafe. Yet the number of letters asking if we include this person, or will not except that one, is very large. We wish we could save others and ourselves the trouble of writing, by stating so distinctly and emphatically, that it would suffice for some months, that *we make no exceptions*.....Here is a droll way of exposing a fraud. A person in Tennessee thinks that parties who are advertising some wonderful seeds are injuring the public and also the reputation of the town; he cites the names of several persons who will give evidence that the seed is a fraud, and then

DOES NOT SIGN HIS OWN NAME!

This is a new illustration of the story of the cat and the chestnuts....The special agents of the P. O. Department are doing much more to protect the public than appears on the surface; their great difficulty is, that the law is so defective that smart swindlers can evade it, and carry on their business while they laugh at the officers; all that they can do in such cases is to expose those rascals which the law will not reach. Mr. B. H. Camp, the special agent at Pittsburg, Pa., sends us an account of the doings of a person calling himself an agent of

M. M. HOWARD & CO.,

who profess to be manufacturers of oils, gasoline, naphtha, axle and car-grease, at Pittsburgh. The chap pretends to take orders for the articles named, at much less than the market rates, and then from this makes a very liberal discount for cash in advance. The swindler has been operating largely in Minnesota, Dakota Terr., and Missouri; when last heard from, he was in Atchison Co., Mo. "M. M. Howard & Co." are like Sairey Gamps' Mrs. Harris—

"THERE AINT NO SUCH PUSSON."

That a swindler should try to operate in this manner, is not strange, but that he should find any one who could be tempted by unusually low prices—the very thing that should excite suspicion—to giving him cash in advance, is certainly surprising. The matter was exposed by the numerous letters for M. M. Howard & Co., received at the Pittsburgh P. O.; these proved to be complaints that their "agent" had been paid cash in advance, and the goods had not been received, and are evidence of a lack of business caution that the old woman who keeps a peanut stand on a New York street would not be guilty of. The only remedy in such cases has been administered by this "agent."....Divining rods have been used to find water and mineral veins, and, strange to say, there are people who believe in their efficacy. [N. B.—Do not write us to tell of cases in which the rod has worked. We will not discuss the influence of the moon, the change of wheat into chess, the efficacy of the 7th son of the 7th son, animal magnetism, spiritualism, or divining rods.] But these are outdone by a chap in Massachusetts, who uses the rods to find

VEINS OF ELECTRICITY.

He claims that he can tell where the lightning-rods should be placed to insure protection. Nothing but a want of knowledge of the laws of electricity can indnce any to believe in this nonsense. Electricity is a good thing for the medical quacks. "Doct." Campbell,

THE "VITAPATHIC" MAN

of Cincinnati, has got hold of it, and for once electricity has got the worst of it; he beats Ajax, Bootjaks, or any of those "old ancients," who had a time with lightning. He sells electric machines, and the stuff that they grind out is none of your common kind of lightning; we have heard of "greased lightning," but this beats that. What its different currents will do when applied separately, is remarkable, but "its double compound, vital alterative current," is the current for our currency. Just see what this double, compound, back-action, reciprocating, self-sustaining current will do, when it fairly gets at it. "This current passing through in a proper manner will vitalize all medicines, and all vegetable, animal, and human forms [according to this, the human is not an animal form!]; will cure diseases, restore life, and prevent death." It would be comforting like, if we could honestly stop there, but fairness compels us to give the rest—"even after all other applications of electricity have failed"—"most lame and impotent conclusion."—But what is this electric talk to another treatise by the same "Doctor," which is nothing less than "Introduction to

A LESSON ON OCCULT SCIENCE,

previous to teaching the Full Power." Here we learn that "there is a hidden power in Nature, invincible and sublime." A high old power it is, for besides being variously seen and heard, it is "felt in the balmy air, in the mineral magnet, in the perfuming vegetable, in the electric eel, in the charming serpent, in the magnetic man, and in the fascinating woman." This shows that it is a power worth having, and there are some seven pages more of the same sort; as a power it knocks Corliss' Centennial engine out of sight, for do we not read: "This newly discovered power is stronger than steam, swifter than electricity, and more subtle than magnetism. It is the power of all powers, and the power from which all other powers derive their power." "Occult science"—we should say so! Recollect that this is merely an "introduction, previous to teaching the Full Power." Let us be thankful that the "pow-wow" ends before we get to the "full power."....After dealing with the occult sciences, after being on familiar terms with electricity and "vitapathy" and things, and having had a glimpse at that powerful "power," it is rather a relief to come from this exalted humbuggery down to the real

OLD-FASHIONED QUACK MEDICINE,

that doesn't go poking among the stars and the lightnings, but is of the earth, earthy, one of the real old sort, which shows that the pattern is not lost, but that what has been, shall be, so long as there are people who will believe nonsense, and have dollars to pay for trash. What is a quack medicine without the story of its origin, and what is the use of a story, unless it is both pathetic and absurd? The stuff it is

"LU-CU-PI-A,"

which is not so bad, as a name. The circular is a model in its way, small, but comprehensive—a solid chunk, and so satisfying! The hand of the master is visible in the very first line, which reads, "The King of Terror Baffled!"—He has been that so much, that we should suppose that had become chronic, and his majesty used to it by this time. The next line is "Lu-cu-pi-a." Then follows the portrait of a young lady who—but we anticipate; the graven picture is nothing to the word painting that comes presently. Under the picture is, "Take, and Live."—We admit that this is a little puzzling at the start, whether "Lucupia" is the name of the young lady, and she is to be taken for "better and for worse," or whether Lucupia is to be taken, that we may live and baffle the K. O. T., are points that we look to the history to clear up. The history begins: "In one of the New England States there lives a family"—One of the essential qualities of history is truthfulness, and here we have it. "One member of his family was a lady,"—as often happens in the New Eng.and States, but such a lady, "with a sweet, tender face, with dark-glowing eyes (ah!), with coral-tinted lips (oh!), with rosy-tinted cheeks ('m)! and amber curls" (whew!) The possessor of these could be no common sort of a lady, and we are not surprised to read that: "She was as graceful as a gazelle, as light hearted as a bird, and as spirited as an antelope"—a sort of menagerie, or great moral show kind of a girl, you see! Notwithstanding all this, the lady "took sick"—that isn't exactly the way it is told in the circular; that says: "But, as frost destroys the fairest flower, so does disease the most perfect woman." Sick she was, "Affliction sore, long time she bore, physicians was in vain"—of course, they always are in these histories, and of course she was given up; then Ada (not an appropriate name, as they couldn't aid her), she went and

"DREAMT A DREAM."

Of course she did it three times running—it always takes three times. To make matters short, in this dream she saw an herb—she never saw it before—Charlie must take her out botanizing, Charlie refuses—girl will go—will die otherwise—Charlie yields—she goes—stream—trees death seemed near—"one wild cry of joy"—"There,

there Charlie, there is Lucupia."—We know the rest—herb gathered—stuff made—Ada took—"and nature lived and coursed through her veins triumphant." *Moral.*—Go thou and do likewise. "Price, $1.00 per bottle, six bottles, $5.00." Ada, you are welcomed as a bright star in the constellation in which Old Mother Noble, Eddie Eastman, Thee and Thou Severalbarks, Pilludias Unoka, and the rest are shining lights.

Moths in Furniture—Important.

Taken as a whole, throughout the country, housekeepers suffer more annoyance and destruction of furniture, carpets, and woollen garments by *moths*, than from any other pest. The little red ant is a great nuisance in some localities, but it is not destructive and not very prevalent. Moths are universal, and whole sets of costly upholstered furniture fade away, losing their beauty and substance, even after days, weeks, and months of watching, beating, and picking, with painstaking care. Latterly, establishments have been opened in leading cities to kill moths. First it was done by removing the upholstery from the wood and thoroughly *baking* it. More recently liquid preparations have been used. But the necessity of transporting furniture to these establishments, and the large expense, have been serious obstacles. Some parties advertised to sell a moth-killing secret for a certain sum of money.—We are happy in being able to announce to the readers of the *American Agriculturist* an easy, simple process, that we have tried the past season, with what appears to be a complete success. (We mentioned it to a furniture dealer and repairer to-day, and he said he had practised it for some time, and that it was a sort of "trade secret.")

The Process:—A set of furniture that seemed to be alive with the larvæ, from the month it came new, and from which hundreds of these pests had been picked, and brushed, was set into a room by itself. Three gallons of benzine were purchased, at 30c. a gallon, retail. Using a small watering pot, with a fine rose sprinkler, the whole upholstery was saturated through and through with the benzine. *Result:* Every moth, larvæ, and egg, was killed. The benzine dried out in a few hours, and its entire odor disappeared in three or four days. Not the slightest harm happened to the varnish, or wood, or fabrics, or hair stuffing. That was months ago, and not a sign of a moth has since appeared. The carpets were also well sprinkled all round the sides of the rooms with equally good effect. To have known this two years ago, would have been worth at least $50.00 in the saving to a single set of furniture, and would have saved many days of most annoying labor. If this is not worth, to multitudes of housekeepers, many times the cost of the *American Agriculturist*, we shall be greatly mistaken.—For furs, flannels, indeed all woollen articles containing moths, benzine is most valuable. Put them in a box, sprinkle them with benzine, close the box tightly, and in a day or two the pests will be exterminated, and the benzine will *all* evaporate on opening.

☞ CAUTION:—Benzine, in fluid or vapor form, is very inflammable; therefore, when using it, have *no* fire or burning light in the room—not even a match on the floor to be trod on. With this precaution it is safe. With the windows open its odor even will soon disappear.

Some Bee Notes for October.

BY L. C. ROOT, MOHAWK, N. Y.

WINTERING BEES.

I am frequently asked which method of wintering I prefer—out-of-doors, or within doors. My readers of three years past know my preference for in-door wintering, when done under suitable circumstances. If without a properly arranged, dry room, better leave the bees on their summer stands for the winter, as they will ordinarily do much better than when unsuitably packed within doors. General directions for in-door wintering may be found in the *American Agriculturist* for October, 1875. To prepare bees for out-door wintering, each hive should contain at least 25 lbs. of honey at this date. About one-third of the way from the top, and midway between the ends, a ¾-inch hole should be made through each comb, to allow the bees to pass through freely. They often starve in very cold weather, even with plenty of honey in the combs, for the want of these passages; extreme cold preventing them from leaving the cluster, and passing around the edges of the combs to get the honey. The honey-board of each hive should be removed, and a quilt placed over the top of the frames. These quilts should be made of a size to fit the top of the hive, of heavy unbleached muslin, with about half of a roll of cotton batting, and tied closely enough together with stout twine to keep the cotton properly in place. The cap of each hive should be packed closely with chaff or cut straw, and a piece of burlap tacked on to keep the straw from scattering when it is put in place. Make a hole in the top edge of the cap, to allow the moisture to escape. If the New Quinby, or any side-boxing hive is used, the space at both sides and top may be thus packed. If hives are not well protected from wind, set posts and make a tight board fence around the apiary. The hive should face the warmest direction; finish the fence on that side later in the season, when the bees fly less freely. Set the posts before the ground is frozen, and finish the fence when desired.

ARTIFICIAL COMB FOUNDATION.

What is it?—and how can it be used successfully?—The base of the cells and a beginning for the walls, is formed by passing sheets of pure beeswax between two rolls. It is one of the leading inventions of the day in our line, and will prove a valuable aid to bee-keepers. I will soon give a full description of the mode of manufacturing, and indicate some of the important ends to be gained by its use.—In consequence of the moderate yield of fall honey, the amount last taken from the hive, of which a record has been kept, was only 10 lbs.

Do bees gather honey from the Ailanthus, and is it poisonous?—I have never lived in sections where this tree was common, and am wholly unfamiliar with it. I do not recall any mention of it by writers on bees.—[Any information on this point will be acceptable.—EDS.]

W. A. Dean, Minn., is referred to the January number, 1876, of the *American Agriculturist*, for directions concerning the New Quinby Hive, and to the October number, 1875, for suggestions about in-door wintering.

Brass Milk Cans—Water Fences.

A young lady reader, who has traveled in many lands, but now lives on a fine farm, loves the country, and is observant of rural things, sends us the following:—I was quite interested in the engraving in the September number representing the "Flemish Milk Wagon," for it brought to mind many little facts in connection with the dairywomen of Holland and Belgium—some of which may be of interest to your readers. The whole "turn-out" is peculiar, as the picture shows, but it does not indicate how much the cans differ from any used in this country. They are all of brass, and shine as if their owners had but just ceased polishing them. A ride in the cars through the rich pasturing districts, presents many new features. As we look on either side for miles over the level country, the gates which are set here and there cause one to wonder how the cattle can be kept in a pasture with only a gate for a boundary. But the fact is, these fields are fenced with a ditch of water some six or eight feet wide, so that a gate on the slight plank bridges which lead from one field to another, is all the protection that is necessary. Much of the land being below the level of the sea at high tide, there is never any scarcity of water with which to make the water fences. As early as four o'clock in the afternoon, women can be seen going out in boats to the pastures through these small canals. The brass milk can stands in the stern of the boat, and is filled from the pail which the woman uses when milking the cows. There are scarcely any trees in these pastures, which, however, is not such a lack in that country as we should consider it here, as the climate is mild and moist on account of the close proximity of the ocean. [In traveling through Holland, we noticed that in many places there were no gates even. The short bridges alluded to by our correspondent were arranged to slide off, or perhaps more frequently to raise up. So, to "close the gate," they simply elevated one end of the bridge, sometimes two or three feet, and sometimes they stood perpendicular. Some were held up by a cord or rope attached to a stake; others were supported erect by an upright post that lay upon the ground when the bridge stood on end. On the west coast of Holland, subject to cold winds from the ocean, most of the cows in the fields, even in July, were covered with a sort of blanket jacket, extending from the shoulders or neck to the flanks. Many of these were in variegated colors, and were quite ornamental.—ED.]

Tell Us About Your Wheat.

The wheat questions in the September number (page 334), have called forth many responses, which contain so much of interest, and we consider the subject of so great importance, that we are desirous of obtaining data from as many wheat growers as possible, in order that the results may be of the greatest benefit to our readers. If every wheat-growing reader of the *American Agriculturist* would reply to these questions, we could present such an array of facts that each one would be many times repaid for his trouble, in being able to compare his own experience with that of hundreds of others from widely scattered localities. All of the questions may easily be answered on a postal card by writing the replies opposite the respective numbers, as in the following transcript of one of the replies received:

(1.) Don't sow any.—(2.) Hard Scotch Fife.—(3.) Black loam, clay subsoil.—(4.) Burnt straw.—(5.) Scatter straw when we thrash.—(6.) 1¼ bushels.—(7.) 15 bushels on the average.—(8.) Think not.—(9.) Never.—(10.) April, or as as soon as possible in spring.—(11.) 75 cents to $1. (Signed), HENRY ARMSTRONG, Louriston P. O., Chippewa Co., Minn., western part of State, on St. Paul & P. R. R.

Send on the postal cards, the more the better.

Steam Power for Farm Use.

On many farms, steam as a motive power is now considered indispensable, and its rapidly increasing use for farm purposes is a striking sign of agricultural progress. Many large farms of the West would be almost as much at fault without steam, as a back country saw-mill without water. The multiplicity of uses to which steam power can be applied on a farm, is hardly appreciated, save by those who have had experience. The proper "agricultural engine" is mounted on wheels, that it may be moved from one part of the farm to another, and the greater number of purposes to which it may be applied, the more valuable it will be. Such an engine may be used for running a threshing machine in the field or at the barn, or a portable saw-mill in the woods, for turning a grist-mill, or for ginning cotton. When placed in position at the barn, its power may be utilized for baling hay, running a hay fork, cutting fodder, sawing wood, pumping water, winnowing grain, shelling corn, etc.; while its steam may be utilized, if desired, for steaming fodder, or cooking food for swine. By connection with the dairy, it may run the churn, and the steam warm the milk room, or even be used for heating milk. A year ago we illustrated several excellent engines used for these purposes; the one now presented is a portable machine, made at the Pennsylvania Agricultural Works, York, Pa. It differs from some others in its vertical tubular

Fig. 1.—ENGINE IN POSITION.

Fig. 2.—ON WHEELS READY FOR MOVING.

boiler; figure 1 represents it in position for use, and figure 2 shows the engine mounted on wheels, for transportation. The wheels shown in figure 1 are on an axle made fast to the boiler, and are useful in placing it in position; any farm truck may be used for forward wheels. In common with

other wares of the manufacturers, this engine has a good reputation among those who have used it; is substantial, compact, economical of fuel, easy running, and sold at a reasonable price. It is claimed for this vertical engine, that it is much cheaper than a mounted horizontal engine of the same power, while nearly equal in essential particulars.

Our Country Financially.

Important and Interesting Figures.

At the Minnesota State Fair at St. Paul, the President of the United States was present on Sept. 5th, and addressed an immense throng of visitors, dwelling mainly upon the material interests of our country. We epitomize from the address a few figures, which show the wonderful recuperation that has taken place even during these past five years of financial distress and enforced economy. These figures refer to the operations of the General Government. During the same time, by the economy in the expenses of individuals and families, in living, clothing, etc., the reduction of private debts, and the accumulations in savings' banks, in Government and other bonds now held by our people instead of by foreigners, there has been going on a very great addition to the real wealth of the whole country, which will be shown in its magnitude by the census of 1880. But to the figures:

	Aug. 1865.	*Aug.* 1878.
Total Interest bearing debt of the U. S. Government..	$2,331,530,295	$1,809,677,900
Decrease.....	.....$571,852,395.	
Annual interest paid	150,977,698	95,181,007
Annual Saving.....	.....$55,796,691.	

(This annual *saving*, if put on interest each year, as a sinking fund, would in 24 years pay off the National Debt).

Total taxes paid in the form of Customs and Internal Revenue taxes:

In 1866.....$188,273,465.—In 1878.....$340,752,305.
Reduc'ion....$247,521,160—(more than half.)

Total expenditures, including pensions and interest: 1867: $357,542,675; 1873: $290,345,945; 1878: 236,964,837. Reduct'n '67-78, $120,578,348—Reduct'n '73-8, $53,380,918.

Total Paper Currency Circulation, including Greenbacks, National Bank-notes, and Fractional Currency:

In 1865..... ....$735,719,366...In 1878—$687,743,169.
Value in gold..... .....509,999,595..... 684,000,000.
Greenbacks worth, about....69½ cents, gold....99½ cents

EXPORTS AND IMPORTS.

The excess of Imports over Exports, from 1863 to 1873, ranged from $39,000,000 to $182,000,000. On the contrary, during the past three years, ending July 1, the *exports* have *exceeded* the *imports* as follows:

1876, $79,648,481; 1877, $151,152,094; 1878, $257,832,667.

Total excess of exports over imports, (not including gold and silver, of which we have sent abroad large amounts produced here), for three years: $488,628,242.

The exports of Agricultural products for the year ending July 1, 1868, were $319,904,531.—For the year ending July 1, 1878, they were $592,478,813. Difference between now and then, $273,471,282.

Of Farm Products, and Petroleum, the *exports* for two separate years, ten years apart, are interesting:

Year ending June 30,	1868	1878
Breadstuffs, (grain, flour, etc.)...	$68,980,997	$181,774,507
Provisions, (meat, but'r, ch'e, etc)	30,278,253	123,549,986
Petroleum.....	21,810,676	46,574,976
Cotton, manufactured....	4,871,054	11,435,628
Leather.....	1,414,373	8,077,659
Live Animals	733,395	5,844,651
Oil Cake.....	2,913,448	5,095,163
Agricultural Implements..... ..	673,381	2,575,196
Fruit.....	406,512	1,376,969

The balance of trade *against* us from 1869 to 1873, was over $110,000,000 a year. During the past three years, it has been *in our favor* over $160,000,000 a year, and in the past year, over $257,000,000, exclusive of specie.

House Your Poultry Early.

BY I. K. FELCH.

The change from summer to fall, with its warm days and cold nights, has its influence upon poultry. There is a distemper called "snuffles" that every chick has as it matures into a cockerel or pullet, though it is often unnoticed, and for want of treatment results in roup, when it becomes contagious, and disaster and death to the flock follows. If the young chicks are taught to occupy the fowl houses before October, no very serious trouble results.

Symptoms of the Distemper.—Listlessness; face and comb quite red, and a puff or fullness of the face under the eye; the second day a white froth in the corner of the eye; a decided loss of appetite.

Treatment.—If taken in hand before the appearance of the froth in the eye, it will usually only be necessary to wash the head and beak clean, and blow down through the nose into the throat, either with the mouth, or by means of a rubber nipple, thus clearing the tear tube; and bathe the head and wash the throat with a solution of carbolic acid—one part acid to ten parts water. The birds should be kept in a quiet place and allowed nothing but water. The third day they will be quite well.

In aggravated cases when the eyes and face are much swollen, the head and throat should be thoroughly steamed by the use of a large sponge and hot water. The tear tube should be cleared (as above), a desert-spoonful of castor oil given, and bathing the face and throat with the carbolic acid solution, continued at short intervals.

This distemper may be called a cold, or the incipient stages of roup. In our opinion it is no more roup than a cold is measles. There is no offensive smell to the breath as in roup, but if neglected it will induce that disease. The breeder has the choice of adopting the adage, "A stitch in time saves nine," or by neglecting it, have that scourge of a poultry house, "roup," to contend with. Be sure your fowls are in winter quarters before the frosty nights of October, and this, with other drawbacks to success, will be avoided.

Talks on Farm Crops.—No. 20.

By the Author of "Walks and Talks on the Farm," "Harris on the Pig," etc.

There is much talk and not a little enthusiasm in regard to the use of artificial manures for wheat. "You can see to the very drill how far the phosphates were sown," is an oft reiterated remark. "I put a mark on the fence," said one of my neighbors, "but there was no need of that. A blind man could see how far the manure went."

"Yes," said the Deacon, "and they say clover shows just as plainly the effects of the phosphates."

"You mean," said I, "that when wheat is dressed with superphosphate and seeded down with clover and timothy, the phosphates not only benefit the wheat, but give a better crop of clover afterwards. This is precisely what I should expect. And if the clover is plowed under, or pastured, or if made into hay, and the manure saved and applied, artificial fertilizers will greatly enhance the permanent value and productiveness of the farm."

The Deacon is a new convert to the use of artificial manures, and is acting as agent for their sale. Possibly the commission has something to do with his conversion. He was walking over my field of mangels yesterday. We have been very short of men, and have had great difficulty in keeping the crops clean. Still, my mangels never looked better. When we had walked about half across of the lot, the Deacon stopped and wanted to know if I had been using any phosphates. "Why do you ask?" said I.—"Up to this row," he replied, "the mangels are not nearly so good as on the rest of the field. On this portion there are many vacancies, and I see you have set out cabbages to fill up the gaps."

"Yes," said I, "we set out over 20,000 cabbage plants, and I think 99 per cent of them lived and have done well. It is not nearly so much work as one would suppose, and the ewes and lambs next spring will be very grateful for them."

"You had better have drilled in phosphates on the whole lot," said the Deacon, "and thus saved the necessity for cabbages. Up to this row you have seven acres of mangels that completely cover the ground, and not a thousand cabbages on the lot, while on the remaining seven acres, the mangels, while perhaps as large, are not so even and regular. You did not sow any phosphates on this half?"

"No," said I, "there were no phosphates sown here, nor on the other half. There is no difference in the land or in the seed or manure. There is only one reason for the difference. The land was a clover sod last year, which was a very poor catch. We plowed up the north half and sowed corn-fodder, pasturing the south side and plowing it early in the fall. This spring the whole field was plowed, and 8 or 10 tons per acre of well rotted manure spread on the furrows. It was then harrowed with a Thomas' smoothing harrow to break up the lumps of manure; and afterwards with a heavy three-horse harrow to work in the manure. It was then plowed again, rolled, and harrowed. And the heavier portions were cultivated with a two-horse cultivator, from which we took out every other tooth and then let it run as deep as two good horses could pull it. This mixed the manure still more completely with the soil and brought more lumps of hard soil to the surface. These were again rolled and harrowed, and the land, as far we had gone, was ready for the seed. We marked out the land, north and south, into rows of 2 feet 5 inches apart, drilled in the seed, and followed with a two-horse roller. When we had sown half the field, I concluded that seven acres was about as much as we should be able to hoe before the plants got too big. Mangels are sometimes slow in coming up; not so the weeds. As soon as we can distinguish the rows, we go through with a horse hoe, I follow with the hand hoes, singling out the plants a foot or fifteen inches apart, and at the same time, cutting up all the weeds. It is very important that this work should be done promptly. A few days delay not only checks the mangel plants, but adds greatly to the labor. Weeds are like fire. It is an easy matter to put out a fire just as it starts, and it is much easier to keep the weeds down just as they are starting to grow, than after they get possession of the soil."

"We all know that," said the Deacon.—"True," said I, "but we are very apt to forget it every spring. I have been caught more than once, and a singed cat dreads the fire. I did not want to put in all my mangels at the same time, because I knew we had not force enough to hoe them all at once. After we had drilled in the seven acres, I thought we had better wait a few days before sowing the remainder of the piece, and as we had time I concluded to *give the land an extra plowing*. And that is the only reason why the mangels are so much better on this half of the lot, than on the other half. That extra plowing was worth $10 or $15 an acre."

If I had to commence farming again, I would use the *plow* more freely. A German neighbor, whom I have alluded to, as one of the best and most energetic, and successful farmers in the town, planted eight or ten acres of early potatoes last spring. Just as they were coming up we had a severe frost, and the plants were more or less injured. Still he cultivated and hoed them and they finally grew vigorously, and looked quite promising. But for some reason, he neglected to "green" them. I presume he was busy with other matters, and so did not notice the bugs, and not a green leaf was spared. Then the weeds took full possession. It was a sorry sight; I could hardly understand what so good a farmer was thinking about. By and by, however, I noticed a wagon in the lot, and half a dozen men and boys at work among the weeds. They were digging the potatoes, and drawing them to market. It looked like slovenly work. But the next time I drove past, not a weed was to be seen. A good plow, with a jointer, had buried them. The change was wonderful. The field from being a picture of desolation, had been suddenly converted into a model wheat-fallow. It must have required some nerve to have abandoned the crop of potatoes, but it was undoubtedly the wisest course, and the quick use of the plow, enabled our friend to win a victory, out of a seeming defeat. It put the weeds under before they went to seed, and converted them into green manure.

"I think I know what you are about to say," said the Doctor. "You want to recommend farmers to plow their land in the fall as soon as the crop is off. This would certainly improve the appearance of the country. And, on the whole, it is safe advice. But what of the fact, that where no plants are growing, the water which passes through the soil carries off more or less nitric acid."

"I will not discuss this matter now," said I. "It

has an important bearing on some of our farm practices, but I think we need not hesitate to plow land in the fall and otherwise prepare it for spring sowing. I feel sure that it would have been five hundred dollars in my pocket if I had plowed all my land last fall that I was going to sow to barley in the spring. I did plow some of it, and there I had a capital crop. But on two other fields, that were not plowed until spring, the barley was seriously injured by the Hessian fly. If it had been sown a week or ten days earlier, I should have had a good crop—and this year good barley will bring a very high price. And so I feel quite sure that I am safe in advising farmers generally to plow and keep plowing during our splendid autumn weather.

"Many farmers," said the Deacon, "are talking of abandoning barley. This is the first time the Hessian fly has seriously injured it in this section."

"True," said I, "but so far as I have observed it was the poor, late sown crops that were injured, and this fact furnishes another argument in favor of fall plowing and good farming. We should either give up trying to raise barley, or make up our minds to drain our land, work it properly, and make it richer. Barley must have a good, dry, warm, mellow soil. And then we should sow early and drill in some good artificial manure with the seed. Taking one year with another, commercial fertilizers will pay better on barley than on any other ordinary farm crop, and *now is the time to get the land ready for the crop.* Many crops this year were hardly worth thrashing. Occasionally a good field gave 50 bushels per acre, and just think what a difference this makes in the profit. Figure it out for yourself. Good cultivation does not alone make the difference. But without good tillage, we certainly can not have a good crop of barley."

"You would not plow sod-land for barley in the fall," said the Deacon.—"Perhaps not," said I, "but I would plow all the stubble land; we usually sow barley after corn, potatoes, corn-fodder, beans, roots, etc. If need be, I plow between the stooks of corn before they are husked. We finish the plowing after the crop is husked and the fodder drawn in. The Deacon objects to it because it makes too many dead furrows, but these can be plowed back again in the spring, and by cultivating across the lands the field is made level if desired."

Breaking and Training Colts.

BY E. N. JENNINGS.

The word "breaking" appears in the heading, but it shall be used no further in this connection. Breaking is a brutal word and a brutal practice, and an unnecessary one. *Gentling* is a much better term, and describes the only proper practice. The trainer should be on friendly terms with the young animal so soon as he is approachable, and the training should begin when it is a month old. On first going near the colt, do it quietly and gently; don't frighten him, but be deliberate in voice, touch, and motion. Make every movement on this first acquaintance very cautiously, not to excite his fears. Gain his confidence now, and you will keep it, unless abused afterwards; having his confidence, you can do about as you will with the child-horse. The first motion should be to extend the hand in front of, and as near as may be without frightening him. Then gradually draw nearer, carrying neither whip nor stick. Let him first smell your hand, before touching any part of him. The trainer should govern his actions by those of the colt. If he is inclined to kick, be very careful, and do not let him jump upon or strike you with his fore-feet. A colt, in common with most domestic animals, seems to judge of a would-be-acquaintance or friend by both sight and smell, and fears that which he can not see. The best place to first touch him is on the face. This being permitted, gently caress and fondle him for a few moments, and the first lesson is learned.

Haltering and Leading.

When first approaching to tie him, carry the halter on the left shoulder rather than in the hand, so that both hands and arms may be entirely free. Advance to his near side, as the more convenient, for he is thus less liable to kick. Caress him, and when he becomes calm, let the halter slide down quietly into the left hand. Then very gently, but quickly and surely, slip it over his nose, and with the right hand draw it over his head and fasten it in position. It is important that this first attempt to halter be successful, as otherwise it will afterwards be very difficult to do at all. Having escaped once, more or less frightened, he will shun a second effort to put him in leading strings.

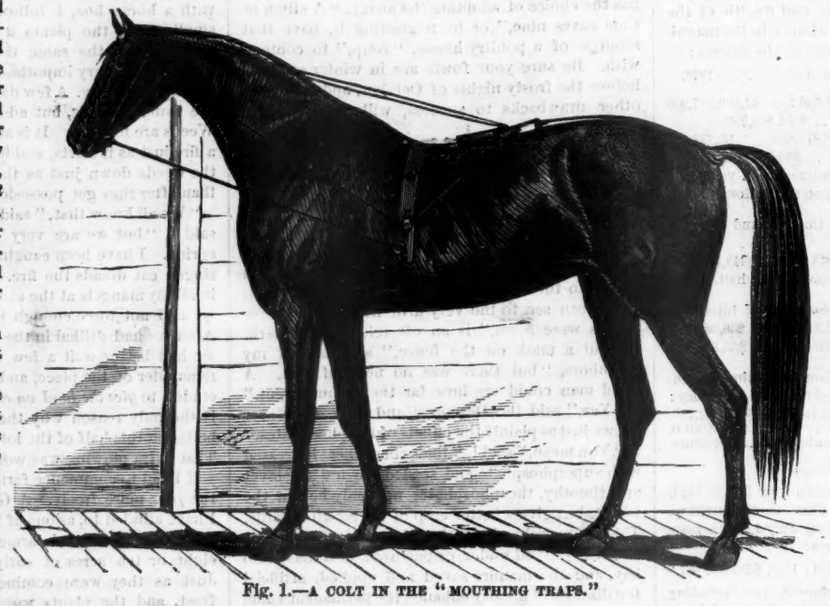


FIG. 1.—A COLT IN THE "MOUTHING TRAPS."

During the first effort to lead a colt (and many horses always), do not look at him, but turn and walk away deliberately, giving a gentle hint with the halter that you would have him follow. If he undertakes to pull at the halter, do not oppose, but ease up as he pulls. "Play him," as a skillful angler does a trout. If you look in his face, or pull strongly at the halter, he will not start. Halt the colt frequently, at first, and pat him; if he does right, be sure to let him know it. A colt appreciates praise, as well as a human being. "Pats are better than taps." If disobedient, don't punish him or pat him, but let him know what praise means. After the colt is halter-broken let him grow, handling and haltering him frequently. Experience proves that a month old is not too young to commence training. At a year old a light harness may be put on, omitting the bridle, or at least the bit, until a year later. There should be no loose straps dangling at the harness first worn, though afterwards allowed that he may get used to them.

Bridling and Bitting.

At two years old, the colt that is well broken to the halter, and will permit easy handling, may be bridled and bitted. If he has not been trained to the halter until near this age, a week or ten days of thorough work with the halter, and in leading him by it, is necessary before bitting. The illustration, figure 1, represents an easy and convenient means of getting the animal accustomed to the bit, and of toughening the mouth. The apparatus consists of a simple bridle with an ordinary mouthing bit (a snaffle), with reins attached, as shown. On the crupper-strap is a spiral spring in a sheet-iron tube. Through an eye at the rear end of the spring is passed what corresponds to the check-rein. The lower reins, attached to the girth, prevent raising the head too high; the spring eases the pressure from the upper rein on the mouth, and the colt does the toughening himself by working his head up and down. He is *backed* into a stall, and tied to "pillar reins" made fast to the posts, as shown in figure 2. This keeps his head straight, yet he is not uncomfortable, and the whole arrangement makes him acquainted with the bit, and he learns to respect it. Teach him thus for an hour or so daily, taking care not to tire him, gradually lengthening the time to two or three hours. Each day after this exercise the colt should be taught to back—gently, as it is hard for him to understand what is wanted, and backing is, indeed, about the most difficult thing to teach the young horse. Thorough bitting, before harnessing, is desirable, and indeed essential to proper training, but ten days or so of this practice will usually fit the colt for

The First Lesson in Driving.

The young horse should be driven a few times in the harness—the trainer in front—and taught to turn to the right and left, to rein back, etc., before attaching to a wagon; use long reins, and possibly an assistant may be useful to show him what the reining means. Always use a light vehicle at first, as many horses are made baulky by hitching to a heavy wagon at this time. A "kicking-strap" should be fastened over his rump from one shaft to another to prevent his heels hitting the wagon. If a colt hits nothing when he kicks, he will soon stop kicking. In starting off, some one should lead the colt a few hundred yards, to encourage him, and he should be patted when let go. When training, remember that "a light hand makes a light mouth, and a pleasant driving-horse." The well known important rule of practice, to start a horse by word of mouth, rather than by a touch of the whip, applies especially to the training period.

Saddling

should not generally be attempted until the colt is three years old, though it is sometimes done without injury at two years. An assistant should hold the horse at the first saddling. Let him see and smell the saddle. In placing it upon his back, turn the girths and stirrups over the top, and in fastening the girths, do not let them swing about lest they frighten him; buckle them loosely, for if too tight they are liable to get burst. Let the colt become used to the saddle before riding him. After two or three days, the stirrups may swing loosely in order that he may get accustomed to having his sides touched. Many of these suggestions may seem simple and useless to the ordinary horse-breaker, and to others; but experience teaches that attention to them often makes all the difference between a well *trained* and a *badly broken* horse.

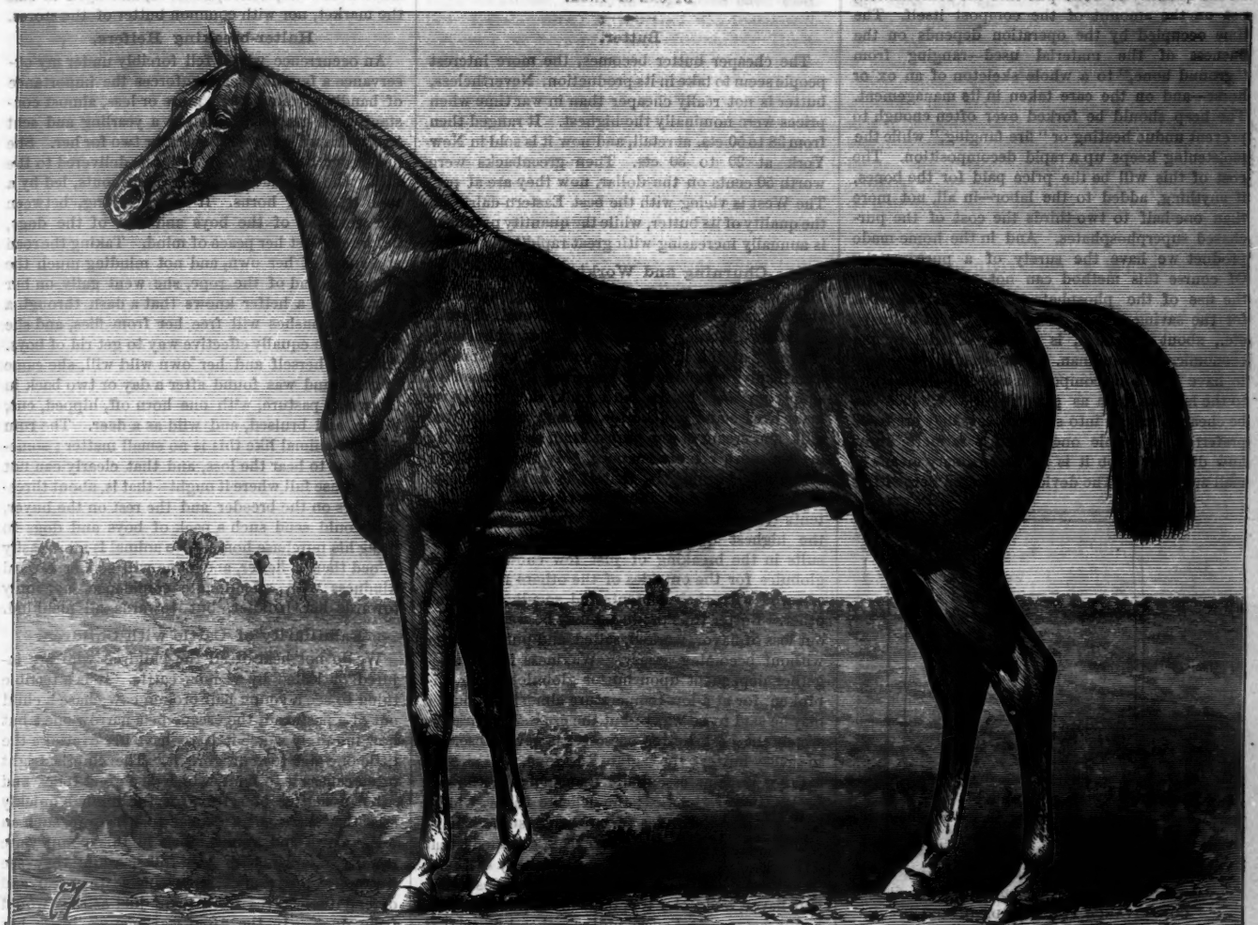
FIG. 2.—SHOWING THE "PILLAR REINS."

A Model Carriage-horse.

We seldom find a more perfect horse for carriage and saddle than the one our artist and engravers have faithfully portrayed in the illustration presented herewith. His name is Dom Pedro, he is a gelding, owned by Mr. Lawson Valentine, of Orange Co., N. Y. He was bred in Schuyler County, his sire being a Morgan from Vermont; his dam was by Texan Jim—quite a famous horse that stood in Seneca County for many years, and sired a large number of fine carriage-horses. This "Texan Jim" is said to have been a wild horse captured on the plains of the Lone Star State. Dom Pedro, however, is strongly of the Morgan type. He is well proportioned and finely moulded, full of vigor and energy, yet so docile that ladies handle him easily. He seems almost conscious of his beauty, and when turned out loose in field or paddock, he will curvet and prance, and dash over the green sod, in view of spectators, with much of the grace and spirit of his free ancestors of the plains. His head is fine, and his face shows a high degree of intelligence; the eye is bright and spirited, but gentle. He is quick to respond to the call of his master or mistress, in saddle or harness, or when loosed from the halter.

In color he is a bright chestnut; he stands about 15¼ hands high, and weighs 1,050 pounds. His body is well rounded in barrel, rump, and neck; his legs are fine, hard, and muscular. In "action" he is exceptional, and "steps like a prince of the blood." He is a superior roadster, though not a trotter, nor is desired to be such. "To be king among carriage and saddle horses, is greater than to be second on the turf."

The raising of carriage horses is too little practised among breeders, their knowledge and interest being more centered in the production of trotters; though one is found now and then who devotes himself to that class of farm and draught horses represented by the Normans, Clydesdales, etc. But the majority of the best carriage horses come from the small farms where one or two colts are foaled each year, or from an accident on the part of the trotting-horse breeder. If breeders would turn their attention to the production of such horses as Dom Pedro, their profits would be quite as large as now, as there is an unlimited demand for them; and their work would be more beneficial to the public at large, both pecuniarily and morally. Gentlemen often spend days and weeks in search of carriage horses, and when they do find one combining the desirable qualities of form, weight, spirit, speed, endurance, and good training, are willing to pay a corresponding price for him. Only those who have engaged in this horse hunting, can understand the scarcity of good horses. Were the demand appreciated, there certainly would be a better supply.



DOM PEDRO.—A GOOD SPECIMEN OF A CARRIAGE-HORSE.

Home-made Fertilizers.

The most successful farmer is the one who avails himself of every means to enrich his land from home resources, and allows nothing to go to waste which can be utilized for plant-food. If success comes when refuse material is only partially utilized, how much greater the success when this refuse is so manipulated as to secure all of its fertilizing properties in the most available form, and in a condition best suited to the needs of the crop?

Fertilizers from Bones

are those most frequently attempted by farmers, because of their known value for the majority of crops. Well made commercial superphosphates are found to be very efficient fertilizers, and farmers often seek to imitate them, but with indifferent success, always with inconvenience, and often with injury to person or implement, on account of lack of skill in the use of the sulphuric acid employed to "cut" the bones with. Bones are composed of phosphate and some carbonate of lime, and organic matter, the latter containing the valuable ingredient, nitrogen. The phosphate of lime of bones consists mostly of one part of phosphoric acid united with three parts of lime,* which, being insoluble in water, is not available to plants. But this phosphoric acid is the most valuable constituent of bones, and to make it available in the cheapest manner is the one problem of both manufacturer and farmer. The manufacturer does this by treating 100 lbs. of finely crushed bones with about 50 lbs. of sulphuric acid. This acid combines chemically with a portion of the lime of the phosphate, leaving the phosphoric acid united in the proportion of one part, to one and two parts of lime,† either of which is available to plants. Now it is found that when bones—not treated with acid—are reduced to a fine powder, they are more available as plant-food than when in coarse lumps; and the finer they are, the better and quicker acting fertilizer they make. If a fertilizer, nearly or quite as valuable as the commercial article, can be made at home, without acid, it is certainly desirable.

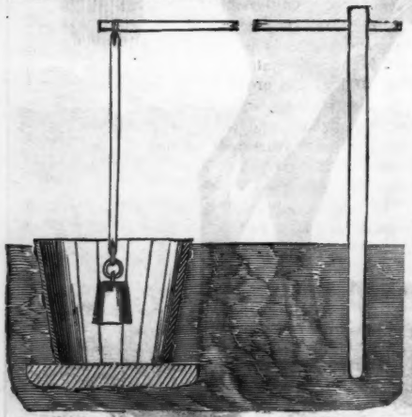
How Shall it be Done?

By putting bones, coarse or fine, even whole ones, into a compost heap of stable-manure or muck, the decomposing action of the organic matter will work upon the bones, and in three to six months' time thoroughly reduce them to a fine mechanical condition. The acids set free in the decomposition also act in a manner similar to the sulphuric acid of the manufacturer—uniting with a portion of the lime, and thus bringing the phosphoric acid into a more available form, as well as converting the organic portion of the bone—or,

* Tri-basic phosphate of lime.

† Mono-basic and bi-basic phosphate.

rather, its nitrogen—into the proper condition for plant-food. The operation, as successfully practised by the writer, and others, is to take all the bones obtainable, or it is thought best to use—either whole or ground—and place them in layers with three or four times as much stable-manure—first a layer of manure, then one of bone, and so on. The whole is thoroughly mixed by shoveling, covered with a few inches of fine loam to absorb any ammonia that may possibly be set free, and moistened occasionally with water, or best with liquid manure. In from six weeks to six months an excellent fertilizer will result, similar in all essential particulars to commercial superphosphate, with the addition of the dung, and may be used with like effect, and on the same crops—reckoning, of course, on the quantity of bone put into the combination, not on the amount of the compost itself. The time occupied by the operation depends on the fineness of the material used—ranging from "ground bone," to a whole skeleton of an ox or horse—and on the care taken in its management. The heap should be forked over often enough to prevent undue heating or "fire-fanging," while the moistening keeps up a rapid decomposition. The cost of this will be the price paid for the bones, if anything, added to the labor—in all, not more than one-half to two-thirds the cost of the purchased superphosphates. And in the home-made product we have the surety of a pure article. Of course this method can not replace entirely the use of the phosphate of the market; but for the saving of the waste bones, dead animals, etc., about the farm, is worthy of trial by the economical husbandman. As it is usually desirable to have this bone compost in a condition to apply to the land as soon as possible, if the bones can be cheaply broken into small pieces, they are to be preferred to whole ones. Many farmers know how difficult a job it is by the ordinary means of mall and stone. The device illustrated herewith is



CONTRIVANCE FOR POUNDING BONES.

suggested as an easy means for pounding up bones. A large flat stone is sunk about a foot or so in the ground, and a half-barrel, with the head knocked out, inverted upon it, and the earth is then solidly packed around the barrel. This will serve as a mortar; the pestle may be any convenient heavy piece of iron, fastened to a stout rod, the upper end of which is to be attached by a strap to a spring-pole, which is secured to two posts at the proper height. By this simple contrivance, which is a modification of the druggist's mortar and pestle, the labor is greatly facilitated, as the spring helps to lift the weight, and is but a slight obstruction to its descent. This will serve to effectually smash up the bones, and prevent waste from the pieces flying about.

The Market for Wheat.—Though hard on the people of that country, the great famine in China has created a large demand for the cereals of the other Pacific Coast States. Owing to the drouth of last year, the area in wheat is less than usual this season in that section, but the product brings a better price by reason of this demand from across the Pacific. Steamers from San Francisco are carrying considerable freight of flour and wheat to supply the Asiatic demand. The increased acerage of wheat in Great Britain and Ireland is estimated at over fifty thousand acres; but to supply the home demand there, about thirteen million quarters (104,000,000 bushels) will be needed from abroad. In France the crop is somewhat below the average, so that country will this year be a buyer instead of seller. Altogether, the prospects of a market for the American wheat are excellent, if prices are not held so high as to prevent free exports. The aggregate crop here is so large that moderate prices only can be looked for.

Among the Farmers.—No. 33.

BY ONE OF THEM.

Butter.

The cheaper butter becomes, the more interest people seem to take in its production. Nevertheless, butter is not really cheaper than in war time when prices were nominally the highest. It ranged then from 38 to 50 cts. at retail, and now it is sold in New York at 20 to 30 cts. Then greenbacks were worth 50 cents on the dollar, now they are at par. The West is vieing with the best Eastern dairies in the quality of its butter, while the quantity produced is annually increasing with great rapidity.

Churning and Working Butter.

Do we make butter or—what? If the *grain* is lost and the microscope shows chiefly a mass of ruins of butter globules, caused by too long churning, churning at too high a temperature, or working unskilfully, rubbing and smearing it, instead of simply *pressing* out the buttermilk, then surely we make grease and not butter, though it come from milk and cream of the purest kind, and be treated in the most cleanly manner. My theory of the action of churning, is, that it is not the breaking of all these cells, thus allowing their fatty contents to run together, that makes butter of the highest quality, but when best done it results in the breaking of just few enough of the globules for the outsides of the others to become smeared with their contents and so adhere to each other. Butter thus produced may be washed without loss of flavor, worked, salted, and put into form without becoming greasy. Waxiness is not altogether dependent upon butter globules being unbroken, for at a low temperature almost any butter may be said to be waxy; but the *granular* character which the best butter possesses is never observed in greasy butter; the "grain" is gone.

Color remains essentially unchanged in the unbroken butter globules; the delicate flavor, which, by the way, multitudes of butter consumers have never perceived, is here, so to speak, confined; that is, it is confined *to* the cells—I cannot say *in* them, for mashed and broken butter globules lose odor and flavor, and color too, on short exposure to the air or water. And every butter maker knows that the *good* butter gains color by standing a few hours after being worked. The air absorbed during the working gradually influences the entire mass.

Changes of Flavor.

It would be interesting to know whether this action of the air has any effect in improving the flavor of the best butter. The flavor certainly changes from hour to hour after churning, with considerable rapidity. Some people are exceedingly fond of the flavor of very recently churned butter; others prefer it twenty-four hours old, and it is fair to suppose that after this time if it does not improve; good butter does not deteriorate for at least ten days. A change, however, gradually comes over the best of butter. At first it loses that peculiar creamy flavor, and is even said to grow sweeter; then there is a sort of reminder of clover and sweet vernal grass; of "fresh fields and pastures new," called the nutty flavor, which gradually passes away. So good butter is *best* when not far removed in point of time from the churn and the pastures.

Tastes differ. I have a friend bred in one of the best dairy districts of Massachusetts, who prefers firkin butter packed in autumn, or even the previous June, to the best May butter he can be served with within a week from the churning. And another, I almost blush to say it—yet he is a most estimable gentleman and a recognized scientific authority, who, if he has not changed since we were at school together, actually prefers his butter decidedly "strong." Well, I dont know that I can say anything against the peculiarity of his taste, for after a very short schooling I cultivated a liking for some of the most powerfully odorous Dutch and German cheeses, so as to take great satisfaction in eating that which was promptly nauseating at first acquaintance. I am led to this discussion, to enforce the fact that it is for us butter producers to take all possible pains to cultivate a taste and fashion among consumers of butter which shall neither be satisfied with the article manufactured from beef suet, salted, flavored, and dyed to suit the market, nor with common butter of the stores.

Halter-breaking Heifers.

An occurrence which fell forcibly under my observance a few days ago, enforces the importance of handling young stock more or less, almost constantly. A gentleman bought a yearling and sent two "smart" boys with a dog or two for her. She had never been handled, yet was delivered to the boys, who were lads of 16, or thereabouts, led by a rope upon her horns. It was not long, between the worrying of the boys and fear of the dogs, before she lost her peace of mind. Taking the road at a speed of her own, and not minding much the boy at the end of the rope, she went gaily on her way. Such a heifer knows that a dash through a clump of bushes will free her from flies, and she found it an equally effective way to get rid of boys. So left to herself and her own wild will, she came to grief, and was found after a day or two back in the wood pasture, with one horn off, hipped, cut, bitten, and bruised, and wild as a deer. The ruin of a fair animal like this is no small matter; somebody has to bear the loss, and that clearly can not in this case fall where it ought—that is, about three-quarters on the breeder and the rest on the buyer, who could send such a pack of boys and dogs to bring his purchase home.—No animal is more easily tamed than a heifer, and none will sooner reward kindness with affectionate confidence, not only towards her handler, but towards all mankind.

Familiarity of Cattle with Children.

We do not hear of all the children who are injured or killed by vicious cattle. It is a terrible thing to see a young half-broken cow chase a child out of a pasture if the escape be a narrow one; but how infinitely worse it is to have her overtake the little one and toss or gore it. The child's fright often causes it to faint, which is a great relief and often a matter of safety, for the animal quickly sees that there is no danger to her from such an one. Cows and young stock in this country are usually familiar with men-folks, while they see little of women and children—hence they fear and defend themselves from them just as they would from dogs. In the same way many a horse has been fatally gored by a cow or heifer, simply because the latter had never been made familiar with horses. My horses are grazed more or less in the calf pasture, and so the calves know the horses, old and young, and as cows, are perfectly quiet with them. If this is important, and I think it is, it is ten times more important that the heifers should grow up in familiarity with women and children—be driven and fed by them more or less, and at calving time see that children may play with their calves without any harm coming to them. If heifers pass their first calving without getting frightened and distrustful of men and of children, they will always thereafter be quiet and tractable. The practice of turning heifers and young stock out in the mountain pastures for the summer, interferes with this training, but it should be followed all the more diligently in the winter. We can sell our trained heifers and deliver them on board cars, steamboat, or anywhere else, with whole skins, good horns, and unruffled tempers, with a very little attention to their education at the proper time.

Tethering Horses and Cows.

It is a good while since I have made any modification in my ways of tethering. Horses are tethered

by either foreleg—never by the head. The best tether is a rather stout chain (not less than ¼-inch iron with 2-inch links) with rings and swivels at each end. This is most conveniently attached to the leg by a well-fitting fetter. I had sets of fetters sometime ago which were excellent, but they became rusty and were finally beaten and broken. Since then I have used an inch and a quarter to an inch and a half strap, passed twice around above the pastern joint, each time through the ring, and buckled just so snug that it will not slip over the joint, and yet so loose that it will slip around the leg. The tethered animal must be led to the end of the tether before it is set free, and then watched a little so that it shall not start off with a rush in the opposite direction and be brought up too suddenly. I have never had any difficulty with horses—they seem to comprehend the situation at once. Cows are tethered in precisely the same way, but by the hind leg. They will sometimes kick excitedly for a while, but no harm ever comes of it. To avoid this I usually attach the chain, and then lead the cow some distance to get her accustomed to the burden upon her leg, and to let her see that it will do her no harm.

Standard Fowls.

BY I. K. FELCH.

The numerous poultry papers teem with advertisements of "Standard Fowls." How is this term to be understood? We have seen the practice condemned on the ground that no bird is a standard fowl unless in every particular it fills the description of the Standard of Excellence. In that sense there are no standard birds, for none are perfect. But it is unfair to take this extreme view. The writer holds the opinion that one has the right to use the term "standard fowls" if it be true that the stock he offers will scale 85 points or more; for the standard places the minimum number of points a first prize bird shall scale at that figure. Those opposing the use of the term claim that amateurs are misled by it. But ought they to be so misled? We think not; for there has not as yet been reported a perfect specimen. Although there has been, through the facetiousness of a judge, one or two specimens scaled close up to 100, yet it has never been our lot to see one better than 96 points, unless the excess was the result of credited weight. So long as not one bird in five thousand scales 95 points, we deem the term a legitimate one when used to designate fowls acknowledged as first-class.

Horses with and without Shoes.

The European papers are discussing the question of shoes or no shoes for horses, with the argument apparently in favor of those who advocate bare-feet. The fact is cited that wild horses, necessarily unshod, always have fine feet, as also do the horses of most savage and barbarous peoples, even in rocky and mountainous countries. Against the assertion that the hard, macadamized, and paved roads of cities and towns demand a metallic shoe, is opposed the fact that in Porto Rico, at least up to 1840, no shoes whatever were used, yet the streets are paved and macadamized. The races of St. John even, where horses go a mile in less than 4 minutes, are run on the stone paved streets of the town of San Juan; and a writer in the "Live Stock Journal," (Eng.), who spent many years in that island, says that he almost never saw a sore-footed horse there. But the celebrated veterinarian, Mr. Fleming, comes out strongly in the "Veterinary Journal" against bare feet, claiming that their moist climate and hard roads demand a metallic protection to the hoof, as proved by experience.

Fig. 1.—HOOF FITTED FOR CHARLIER SHOE.

Fig. 2. CHARLIER SHOE.

At any rate the new-old idea is attracting attention, and some horse owners have adopted it in practice. After removing the shoes, the horse is driven only a short distance daily, on a hard road, increasing gradually to from four to six miles in the course of a week. Water is not avoided, but grease is, as then nature is imitated the closest. Until the nail-holes have disappeared, *i. e.*, grown out, the hoof will look rough, and crack off more easily than afterwards. The results of the trials reported seem favorable to the shoeless practice. At first the hoof chips off badly, but soon becomes hard, and the horse seems to like it as much as the urchin likes his bare-footedness. But the experience of generations of shod horses, and the facts and arguments in favor of no shoes, suggest a middle ground, viz.: for paved or stony streets and roads, a metallic shoe; and no shoes for smooth, even hard roads, for country roads free from stones, and for field work, especially on prairie and other farms where there are no stones, or very few. We are not familiar with any instance in America where the use of horses without shoes has been thoroughly tried,

Fig. 3.—THE SHOE IN PLACE.

but considering the great saving and possible benefits that might ensue, we suggest that the question is worthy of careful consideration, as it is certain that at no time is the horse's foot in so healthy a condition as when unshod. A near approach to nature, which allows of the foot resting squarely on the ground, yet at the same time protects the hoof from injury, is the Charlier system of shoeing, which now finds considerable favor in Europe. The method is fully described in the excellent work on "Horse-shoeing," by Mr. Fleming,* who says: "Leave the hoof in a natural condition, so far as frog, sole, and wall, are concerned, and imbed a narrow rim of iron, no thicker than the wall, around the lower circumference of the foot—that exposed to wear—like the heel of a man's boot, and we obtain an idea of the method."

The crust or wall is beveled off with the rasp, and by means of a knife with a movable guide, a groove is made to receive the shoe, as illustrated in fig. 1. The groove is a little shallower than the thickness of the sole, and somewhat narrower than the thickness of the wall, "not extending beyond the white line separating the sole from the wall." The shoe is a narrow but deep band of iron, narrower at top than at the bottom, and so forged that its front surface follows the slope of the hoof, as seen in fig. 3. Its upper inner edge is rounded by the file, and a little of the horn is removed from the angle of the groove in the hoof, which prevents undue pressure of the shoe against the soft horn at that place. In strong hoofs, the shoe is almost buried in the groove; but with flat soles and low heels, it is not safe to imbed it so deeply. Four to six light nails are used; with light driving horses four are sufficient, placed wide apart at the toe, and close to the heel, as in fig. 4. Fig. 2 represents the shoe. It cannot be used on all feet, and to make the groove and shoe fit well requires some care; but when once understood by the farrier, the shoeing is said to be very simple. The advantages are: leaving the foot in its natural condition as to frog and sole, "the small number and size of nails required, lightness of the shoe, and security to the horse in progression," as it places the foot fairly upon the ground. It is used on horses at all kinds of work, and it is said that the combination of horn and metal stand an astonishing amount of wear for so light a rim of iron. These shoes are usually applied to only the forefeet, as the hindfeet are thought to be not so well adapted to them.

Fig. 4.—MANNER OF NAILING.

* "Practical Horse-shoeing," by G. Fleming. Published by Orange Judd Company. Price 75 cents, post-paid.

The Cultivation of Wheat.

Much interest is manifested in improved methods of managing the wheat crop. Hitherto the preparation of the soil and the sowing of the seed have comprised the whole work, and natural influences have been left alone to modify the results for better or for worse. But of late, the idea has arisen and been gaining in favor, that by making use of the same methods employed to forward the other crops, we could largely increase the yield of wheat; that by cultivating the grounds and destroying the weeds, the plants would be much strengthened and increased in productiveness. That this idea is correct, admits of no doubt; it is reasonable, and ample proof of its practicability has been given by both experiment and practice. In England, France, and Germany, it has been common, for many years past, to hoe the wheat, and to remove the weeds by hand; and of late years, horse-hoes have come into use for this purpose.

The articles published in the *American Agriculturist*, have given rise to numerous requests for further information and discussion of this matter. It is obvious that mechanical cultivation can be applied only to crops planted in rows, and that only drill-sown wheat can be worked by either hand or horse-hoes. It is impossible, in this country, to use hand labor profitably for hoeing wheat on a large scale, on account of its high cost. Horse-power only can be used, and the implement must be made to cover many rows at once. The drills must be separated by such intervals as will permit the safe passage of the hoes between them, and the machine must be carefully guided. In practice it has been found that 9 to 12 inches is the best distance. The defect in most drills as now made, of the spouts being too near each other, may be remedied by tying two of them together, or by removing each alternate one—thus doubling the width of the spaces between the rows. There is then ample room for cultivation. The illustration (see next page) shows the working of an implement such as the Travis hoe. As the frame which carries the hoes is loose, and oscillates somewhat, it is easily managed so as to avoid cutting the plants. The wheat-plant has two sets of roots; one springing from the seed, and another which starts from an enlargement of the stalk near the surface. The latter form the permanent roots, and as these spread, new spires appear above the ground, each of which throws out roots for itself and forms an independent plant, and this in turn increases in the same manner. By separating these new plants from the parents, and transplanting them, repeated several times, as many as 500 vigorous and distinct plants have been produced from one seed. It is thus seen with what facility the wheat-plant will spread when the best conditions for the exercise of

its natural habits are provided. This multiple growth is promoted to the greatest degree by proper fertilization and cultivation, as well as by giving the plants sufficient room to spread. The accompanying illustrations (figs. 1 and 2), indicate how this may and may not occur. At fig. 1 is shown a series of drills the usual distance apart, say 6 to 7 inches; at fig. 2 is a series at double the distance. The former is supposed to be left un-

Fig. 1.—WHEAT IN CLOSE DRILLS, UNCULTIVATED.

cultivated, with the soil beaten hard by the fall rains. The plants, therefore, have not sufficient room to spread their roots as becomes strong, healthy, actively growing plants. But in the case repre-

Fig. 2.—WHEAT WIDE APART AND HOED.

sented at fig. 2, a different condition prevails. Here there is room for the plant to spread its surface roots. The soil being opened by the cultivator, is aerated and warmed; the young roots soon occupy it, and the new plants quickly cover the feeding ground thus provided. The drills then appear as in the engraving, and early in spring a vigorous

Fig. 3.—THE WHEAT-HOE AT WORK.

growth hides the spaces between; while in the former case, open ground may be seen for a long time.

There are two ways in which we must improve agriculture; one is by making labor more effective, and to cover more ground by the use of the best methods; and the other is by increasing the yield of crops. By cultivating small grains, as we do corn and roots, we effect both of these desired ends, so far as the mentioned crops are concerned, at least.

Marking the Horns of Cattle.

A correspondent who pastures cattle for other persons, wants a method of marking to easily distinguish those of different proprietors. Steel implements are easily procured having the initial letters of the owner's name on one end. These, heated and pressed on the horns near their ends, give no pain, and leave permanent marks, which may be scraped or filed off if ownership changes. The accompanying illustration shows how to mark the horns both with the marking iron and with a common coarse file. With a file one can make any letter or symbol consisting of straight lines, as V, A, W, N, M, etc.

HORNS MARKED.

A coarse mill-saw file, or a blacksmith's rasp may be used for a large number of different marks, and in most cases will be the only instrument required.

Making Ox-Yokes and Bows.

Ox-yokes may be of different patterns and styles, but they must be made upon a certain fixed principle, or they will be unsatisfactory in use. An ill-fitting yoke hurts the ox, either by pressing severely upon and galling the shoulders or neck, or by rising upon the neck and drawing up the bows, tending to choke him. Thus an innocent animal, though patient and willing, is often unable to work, and is esteemed lazy and stupid—is subjected to ill-treatment and abuse, with loss of temper by the owner.—The chief points to be considered in making ox-yokes, are strength and lightness of material; length, and the proper thickness consistent with sufficient strength; form and position of the bow-holes, with reference to the proper distance between the oxen; the size of the bows, and the position and form of the hollow resting on the neck.

The timber should not readily split; should work easy, and yet be light and strong. Basswood (Linden) has these qualities in a high degree. The next to be chosen is soft maple or butternut; after these, are cherry and walnut. The piece of timber for the yoke should be sawed 5 feet long, 10 inches wide, and 6 or 7 inches thick. In laying out the pattern, the line of draft is even with the eye of the bolt holding the ring, as the draft is from that point. The center of the pressure of the animal's neck must fall exactly upon this line, or the yoke is forced to turn up or down, as the draft may be below or above this axial line. If the draft center is above it, the bows press unduly upon the throat; if below, the yoke slips back and chafes the neck, even if it does not choke by drawing the bow up against the throat. The hollow for the neck should not be above or below the curve or arc of a circle, the center of which falls upon the draft line, and which arc or curve touches the lines of the bow-holes. This is shown at figure 1, where dotted circles are seen below *a*, *a*, the centers of which fall upon the dotted line passing through the eye of the draft ring, this representing the line of draft. The lines passing through the centers of these circles at *a*, *a*, will be the point from which the places for the bow holes are measured. (See *a*, *a*; also in fig. 2.) To get these points, cut a piece of board into the form of the diagram—5 feet long and 10 inches broad—and divide it into four equal parts by the lines *a*, *b*, *a*, figures 1 and 2. The center line, *b*, is the place for the draft ring, fastened by a clamp (fig. 7), as described below. Cut the timber by the pattern, and bevel the edges.

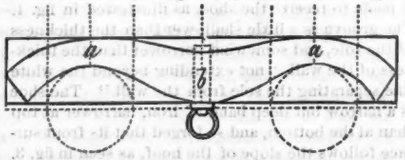


Fig. 1.—MAKING OX-YOKE PATTERN.

The top of the yoke is laid out as in figure 2. The bow holes placed at equal distances on each side of the point, *a*, are bored with a 2-inch auger from

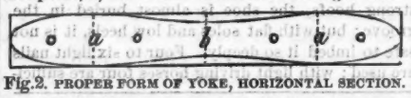


Fig. 2. PROPER FORM OF YOKE, HORIZONTAL SECTION.

each side, meeting in the center of the timber, so as to get them straight; they are smoothed out afterwards with a red-hot iron. For drawing a wagon, put the bow-holes nearer the center of the yoke than for plowing; and they may be changed—of course changing the center lines, *a*, *a*, and the neck curve, at the same time—to suit large oxen. For general use, the following sizes will be found about right: 10 inches between the bow-holes, and 20 inches between the two inside ones. For larger oxen, the lines, *a*, *a*, may be moved 2 to 4 inches nearer the ends, leaving the bow-holes 12 inches apart and 24 inches between the bows. The sides of the yoke are then hewed out, as seen at figure 2; the bevels on the edges are rounded off; the hollows between the bows are sloped to give an easy fit, and all sand-papered perfectly smooth. The yoke should then be well seasoned under cover, and coated with linseed oil or crude petroleum. The bows should be of good hickory, or second growth white oak, or white ash; 27 to 30 inches in length, and 2 inches in diameter before being finally dressed. Soak the roughly dressed timber thoroughly in cold water for two weeks; then steam, or soak in hot water, until pliable. Bend into shape, as at figure 3, by the frame shown at figures 4 and 5. It is a 4-inch plank 24 inches long and 16 inches wide, fitted with a number of holes and pins. For convenience, it may be mounted on four legs or pegs, of any length desired. Bend the prepared timber around the three lower pins, *b*, and if not yet safe to bend it completely, leave it half bent, by putting in the pins, *a*, *a*, for a day to give it a set. The bent portion is then soaked or steeped in hot water until it can be safely brought up to the required form, when it is confined by the other pins and is left to dry and stiffen. By making the pins long enough, as seen at figure 5, several bows may be bent at the same time. When the bows are taken from the frame, the tops should be tied together, to keep them from losing their shape, until put into the yokes. Cut the key holes in the bows, as indicated at figure 6. To fit larger oxen, a second key hole may be made, two inches above the other one, or better in the other arm of the bow, so as not to weaken the first one. The key, made of iron, is shown at figure 6. It is flat, and when put in and turned half round it can not work out. The ring is attached by a broad iron strap clamping the yoke at the center, with screws and nuts at the ends. A plate of iron covers the top of the yoke, and is held by the screws and nuts of the strap; and two pieces of iron, which may be cast, and which fit together over the ring, are held by the strap and by a socket ¼ inch deep cut into the yoke. The whole is clearly illustrated at figure 7.

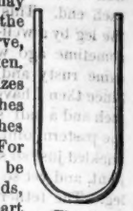


Fig. 3.

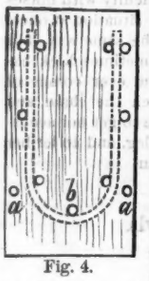


Fig. 4.

Fig. 5.—BENDING THE BOWS.

Fig. 6. KEY FOR BOW.

Fig. 7.—STRAP AND RING.

The Cost of Pennsylvania Crops has been investigated by Secretary Edge of the State Board of Agriculture. Circulars were sent to 200 practical farmers, asking the cost per bushel of the leading crops. The average result was as follows:—Wheat, 81.7 cts.; rye, 63.3; barley, 49; oats, 25.3; corn, 44.6; potatoes, 24.8. This includes interest, taxes, manure, labor, etc., and is the total cost.

Cooling Milk, or Milk Coolers.

Dairymen know, or should know, that it is necessary that milk should be cooled rapidly as soon as drawn from the cow, and kept cool until disposed of. Many methods have been devised for this purpose. We recently saw a plan, an improvement on the old-fashioned spring house, which has some useful points. A small building was erected a short distance below a strong permanent spring, from which water was led into it by a pipe. The floor was sunk below the level of the spring, and cemented water-tight. A tank of brick-work, cemented inside and out, was made, 12 feet long and four feet wide, or large enough to hold 40 cans, 18 inches deep and 8 inches in diameter, each holding 15 quarts or 33 pounds of milk. The capacity

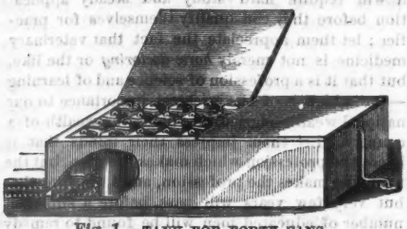


Fig. 1.—TANK FOR FORTY CANS.

of this trough was therefore about 600 quarts, or sufficient for a milk dairy of 50 to 60 cows, yielding a daily average of 10 quarts each, or for a butter dairy of half as many, allowing the milk to set 48 hours. The water flowed into and through the tank, escaping at the lower end. Two lids of plank, covered with zinc, closed the tank and protected the milk from contact with the air. The delivery pipe

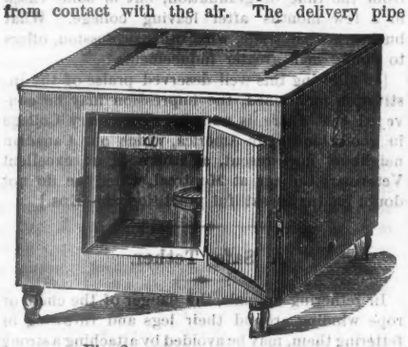


Fig. 2.—THE HARDIN COOLER.

is shown in fig. 1 by the dotted lines. Where flowing water can not be had, and where butter-making is practised, some other method must be employed. Of late, excellent results have been obtained by "cold setting" of the milk in refrigerating closets. Some time ago, we described the Hardin Cooler, which has been in use for some years, but has recently had several improvements added. It consists of a refrigerating closet, which is made of different sizes; that here illustrated (fig. 2), being for 10 cans, which are 18 inches deep, and 8 in diameter. The inside of the closet is lined with zinc, and a zinc tray, *a*, is suspended in the upper part to hold the ice. The drip from the ice escapes by a pipe, *b*, to which a piece of rubber hose is fitted. Formerly, the ice was placed upon a shelf, instead of a tray, and the water dripped upon the milk cans below. This change reduces consumption of ice; and this may be still more reduced by cooling the milk somewhat before putting it in the closet, when it is rapidly brought down to 45 degrees or less. A still lower temperature may be reached by putting salt into the pan. By this means the milk may be cooled to 35 or 40 degrees. At 45° all the cream should be raised in 24 hours. To test the temperature, a thermometer may be plunged into the milk when skimmed. In a trial of this apparatus during the hot weather of August, 50 pounds of ice per day was consumed; and the milk having been reduced to a temperature of 60° before putting it into the cooler, was brought down to 45 degrees in less than three hours.

Grass, Straw, and Corn-stalks for Fuel.

A method of utilizing coarse grass, straw, and corn-stalks, and other similar light combustible matters for heating, has been introduced into the Western States by the Mennonites recently settled there. These people come from Southern Russia, the country of the "Steppes" or treeless plains, which are similar in many respects to our extreme western prairies and plains. Thus they find themselves quite at home, and adapt themselves to their new circumstances with ease. Among others of their peculiar customs, their mode of heating their houses is certainly novel, and is one that may well be adopted by their neighbors. No more plentiful fuel than coarse prairie hay, straw, and corn-stalks, exists in many newly settled sections west of the Missouri river, and other kinds of fuel are scarce. Hitherto, means for conveniently burning such fuel have been unknown. The Russian plan, which is to make use of an enormous brick furnace occupying much room, is cumbrous and inconvenient; but the same principle may be applied in a somewhat different and unobjectionable manner. We give herewith a sketch of a furnace for burning light fuel of the kinds mentioned. It should be built of hard bricks laid in cement. The fire place *A*, figs. 1 and 2, should be large enough to take in a sheaf of straw, or a bundle of hay, or corn-stalks, and the cast-iron furnace door be of a corresponding size. The ash-pit *B*, figs. 1 and 2, is arched at the front and closed at the sides. The furnace should be built upon the ground and have a floor of hard beaten clay, or cement. The oven *C*, fig. 1, is of brick, in the usual form and heated separately, or it may be of cast or sheet iron plates like the ordinary stove. Dampers, *D*, *D*, *D*, direct the heat either to the top or to the bottom of the oven. Walls of brick are built to bring the flame to the roof of the furnace and to retain the heat as much as possible. Openings are made in the top at *E*, *E*, upon which

Fig. 2.
FURNACE FRONT.

to place kettles or cooking pots where they will receive the most heat. Arches, under the oven and the rear of the furnace, provide warm closets for various useful purposes. The furnace connects with the chimney through a throat which may be closed by the damper shown at *F*, which would cause the heat to pass up the pipe in front of the chimney into a sheet-iron drum in the room or central hall above. The heat is shut off from this drum, by the damper *G*. Two openings are left in the front of the furnace, one at each upper corner: and are supplied with sliding doors through which a small amount of air is admitted when the drafts elsewhere are closed, as they should be at night or when a moderate heat only is needed. The arch under the fire-place should be closed by an iron door, with a grated damper in the lower part. For the iron work of the furnace, the ordinary castings of the largest cooking stoves may be used, and can be procured from a dealer or stove foundry. If it is desirable to heat several rooms, an arrangement of pipes and drums, with dampers, may be made to circulate through the house, entering the chimney on the upper floor. One chimney only, in the center of the house, will then be required.

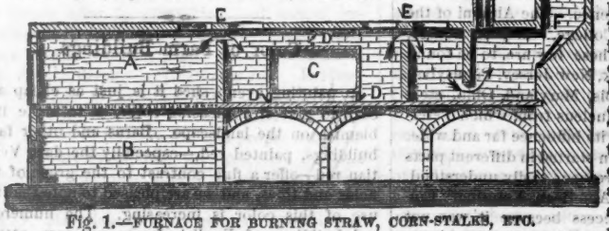


Fig. 1.—FURNACE FOR BURNING STRAW, CORN-STALKS, ETC.

Cutting and Drying Peat.

Peat has been a very common fuel, in some countries, for centuries past. Its accessibility, its easy preparation, and its cheapness where abundant, give it value. Where peat swamps are convenient, and where the supply is sufficient, it compares favorably with either wood or coal for manufacturing purposes. We speak of it now, however, as household fuel. It is cleanly in use; it gives great heat, or it will smoulder slowly when desired if properly managed, ready to be quickly enlivened and burn briskly. It makes little smoke, and that light and free from soot; and the odor is pleasing to many; the "peat reek" from a Scotch or Irish cabin, being one of the things that a traveller in those countries remembers agreeably. It's one fault is, that the ashes are very light, so that when it is burned upon an open hearth they are floated out into the apartment with the least irregularity of draft. Many farmers who now procure wood or coal with difficulty, have an inexhaustible supply

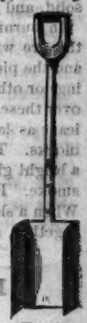


Fig. 1.

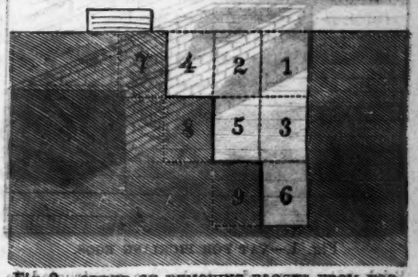


Fig. 2.—ORDER OF REMOVING BLOCKS FROM BOG.

of this fuel at hand. Swamp-muck, as it is known with us, when consisting mainly of the half decomposed remains of roots and stems of woody shrubs and coarse grasses, furnishes excellent peat. When it is softer and more decomposed, it is not so easily handled in the drying, and there is some waste. As fuel, however, this, when dry, is equal to any. When the muck is mixed largely with clay or sand, it is less valuable. When these foreign matters exceed 50 or 60 per cent, the peat makes a poor fuel. When it is desired to work a peat bog or swamp, a drain is first made to carry off the water, the moss and upper stratum of

Fig. 3. DRYING THE PEAT.

Fig. 4.—THE DRY PEAT STACKED FOR USE.

spongy matter are removed, and the surface of the solid peat laid bare. A tool known as a skean (fig. 1), shaped like a spade, with the sides turned up about 3 inches at a right angle, and with a sharp,

edge at the bottom, is used to cut out the blocks. These are cut in the manner shown at figure 2, and in the order indicated by the numbers, for the purpose of keeping the water at the lowest point. The digger stands on a plank lest the soft peat should be broken down by his trampling upon it. The blocks are laid to drain upon the edge of the ditch, and when hardened sufficiently by exposure they are put up to dry in the manner shown at figure 3. As the peats dry, they shrink largely, and when solid enough to withstand the pressure they are piled in stacks for final drying, as at figure 4. The stacks are covered with coarse hay to shed the rain. When thoroughly dry, the blocks are light, but solid, and will bear handling without waste.

In burning this fuel, care is needed to manage the fire with success. A block is first broken up and the pieces are lightly placed upon some shavings or other kindling. A few half blocks are laid over these, and then whole ones so placed as to leave as large air spaces as possible between the blocks. Thus arranged, they burn lively and make a bright glowing fire without flame, and with little smoke. It is a pleasant fire to broil meat over. When a slow fire is wanted the peats are laid close together, and some ashes drawn over them.

Packing Eggs for Winter.

Of the various methods practised for preserving eggs for winter use, one of the most effective is that employed by the dealers who buy when the supply is large and prices low. This is as follows:

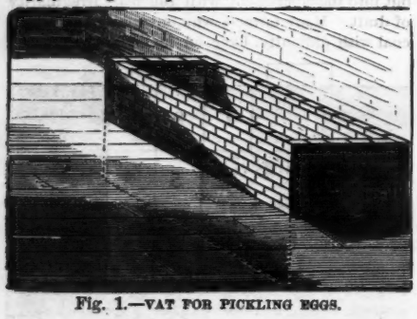


Fig. 1.—VAT FOR PICKLING EGGS.

Brick vats, or wooden tanks, are constructed in cool dry cellars, partly sunk below the level of the floor, as in figure 1, the dotted lines showing the portion below the ground. These vats and tanks, —or casks, which may be used instead,—are partly filled with a preservative mixture of thick lime-water, or milk of lime, to which are sometimes added salt and a small quantity of cream of tartar (bi-tartrate of potash) and the eggs are placed in this mixture and kept covered. The eggs are placed in the tank by means of a peculiar dipper, (fig. 2) made of a round, shallow tin pan, with a long handle, the tin being perforated to drain off the liquid. The eggs are lowered to near the bottom, and gently rolled out, with little risk of breakage. Here they remain until required for sale. If they were fresh when packed away, they will come out after three or four months so little changed, that few persons would be able to distinguish them from fresh ones. When wanted for sale, they are taken out of the pickle with the dipper, and carefully placed in the crate, shown at fig. 3. This is made of laths; but an open splint basket would answer the purpose as well. A large low tub, as half a hogshead, is provided, and two boards are placed across the top as seen in fig. 4. The crate of eggs is placed upon the boards, and water is run through it until all perceptible traces of lime are removed. In this method of preservation, there is nothing that may not be done in a small way, and with any substituted apparatus which will answer the purpose. One thing is imperative—the eggs *must* be fresh when packed, or they cannot be kept in a good condition for several months.

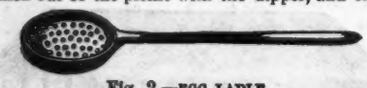


Fig. 2.—EGG LADLE.

The Lack of Educated Veterinarians.

BY A. LIAUTARD, M.D., V. S.

Inducements to Young Men to Study Veterinary Surgery and Medicine.

The *American Agriculturist* for September, contains an excellent letter from one "Among the Farmers." His hints on treating ailing animals, on Veterinary Surgeons, etc., are very good, and as one among the Veterinarians, I would say a few words in confirmation of your correspondent.

That the number of educated Veterinarians is yet far below the requirements of the country, every one knows, and it will probably remain thus for some years to come. Why should Veterinary Science stand so low among us, while the number of domestic animals is so great? It is not merely because our people are ignorant of the real value of the profession, for every one will admit that Veterinarians are much needed, that it is a difficult profession to master, and that it requires as much study as to become a physician, if not more. It is rather because those engaged in the profession, generally speaking, have proved unworthy of the confidence of the people, either by their conduct or by their ignorance and their own social standing. Scarcely one respectable veterinarian can be found where there are ten such pretending practitioners. This being the case in many large cities, what must it be in the country?

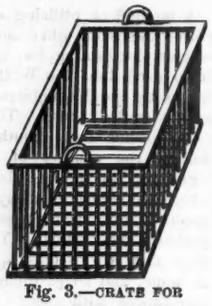


Fig. 3.—CRATE FOR IMMERSING EGGS.

It was to remedy such condition of things that Veterinary Schools were started. I would here correct an error of your correspondent. He says: "We have two or three Veterinary Schools." There is at the present, only one Institution entirely devoted to the study of Veterinary Medicine, in active working order, viz., the "American Veterinary College," situated in New York City, at 141 West 54th St., which has been frequently announced in the columns of the *American Agriculturist*. This Institution, far from "struggling with poverty or lack of appreciation," is in a prosperous condition and is fully satisfied with the success it has met since its opening. Its facilities are as good as those of any of its kind; it has a faculty of eight professors, who, since 1864, have been lecturing every session. This College is well prepared for work; its lecture-rooms and dissecting room are every winter well filled by students from all parts of the country, while the museum contains nearly 3,000 specimens for illustrating the lectures. The hospital and clinics brought last year nearly 1,500 patients [diseased animals] before the class. So far from fearing as to its future, the officers are now puzzled to foresee how they will accommodate their class a year or two hence. The Alumni of the "American Veterinary College," are, of course, yet few in number, but these few are to be found in the States of New York, New Jersey, Pennsylvania, Massachusetts, Illinois, Maryland, Ohio, etc.; and they now form the nucleus from which Veterinary Science will extend its influence far and wide.

Fig. 4.—TUB FOR DRAINING THE EGGS.

Other schools have been started in different parts of this country, but, for reasons easily understood, all have failed. The "American Veterinary College" has proved a success because it was not started for money-making, but for scientific objects, and, with the officers who undertook to carry on the work, it could not prove a failure.

Your correspondent asks, "Why should not Physicians treat animals as well as men?"

In the present condition of the country, with almost no Veterinarians of education, I, as one of them, accept this proposition, and say that rather than to trust to nature alone, and certainly instead of leaving our animals in the hand of every empiric, quack, horse doctor, or any impostor of that sort, by all means let our Physicians give timely assistance and good advice.

But is it necessary that we should depend on our medical man for advice as to domestic animals, and would he be the proper man for that double work? —We doubt it much; though similar in generalities, the two branches of medicine are so different in their details, that it seems to be asking too much of a man to be both a good V. S. and a safe M. D.

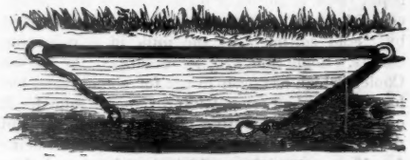
Let young farmers look at the veterinary profession in its proper light; let them remember that it will require hard study and steady application before they can qualify themselves for practice; let them appreciate the fact that veterinary medicine is not merely *horse-doctoring* or the like, but that it is a profession of science and of learning —one which is of the greatest importance to our national wealth—agriculture being the wealth of a country. Let them impress their minds that it is not the profession which makes the man, but the man who makes the profession, and I am sure that but very few years will pass before a sufficient number of educated men will be found to remedy the need at present so much felt by our farmers.

Let me add a few words, which I am sure will carry weight in favor of veterinary science. Out of the whole list of the Alumni of the "American Veterinary College," there is not one who does not command a paying practice of from $1,500 to $4,000 a year; and this not after several years from the time of graduation, but in some cases in a few months after leaving college. What business, what trade, what other profession, offers to young men greater inducements?

[In allowing this well deserved praise of the Institution mentioned, the impression may be conveyed that there is no other Veterinary College in good standing in America, which our Canadian neighbors may resent, as there is an excellent Veterinary College at Montreal, which we do not doubt graduates skillful practitioners.—EDS.]

A Safe Tether.

In tethering animals, the danger of the chain or rope winding around their legs and throwing or fettering them, may be avoided by attaching a strong rod, as a portion of a young hickory sapling, about 8 feet long, to the end of the tether, and by a short chain not more than 2 feet long to the neck strap or headstall. The end of the rod nearest to the animal is thus raised a little from the ground when its head is up, and cannot be interfered with by the feet, nor can the tether chain become entangled about the legs. The method of attaching the rod is shown in the accompanying illustration.



A COW TETHER WITH ROD.

Color of Farm Buildings.

In painting even a shed it is just as cheap and easy to give it a pleasing color, as to make it a blemish on the landscape. Barns and other farm buildings, painted red,—especially the dark Venetian red—offer a fine contrast to the green of the fields and trees, and we are pleased to note that the use of this color is increasing. The numerous red buildings of English farms are very attractive to the traveller's eye; and they are not only handsome in appearance, but also give an air of thrift and permanency to a place, which unpainted wood, or white or straw color, do not impart. We

have one set of farm buildings in mind, in which the brackets and other trimmings are finished off in black, with a most satisfactory effect. The black thus used, gives a distinctness and boldness to the details, and forms with the red walls a happy combination, and one most appropriate in its place. Red barns and out-buildings are not rare; these, when of a glaring, self-asserting red, are not pleasing, and they are still less so, when they are, as we often see them, trimmed with white. It is a rule of good taste in painting buildings, to have window caps, brackets, and other details, darker than the ground work or main body of the material. Why not apply the same principle to farm buildings, especially as it costs no more, and adds to the attractiveness and value of the structure?

For example, a brick house, with a white-marble door way, window seats and caps, and a white cornice, will always look frivolous and cheap; where the same details are of the much cheaper brown-stone, the house has an air of dignity and repose, quite lacking in the other. Other farm buildings are often quite as conspicuous as the dwelling, and in decorating them, quite as much thought should be given to having them pleasing to the eye, especially as it need not require an extra outlay.

The Agricultural Display at the Paris Exposition.

[From Our Special Correspondent.]

The American exhibit is small, but excellent so far as it goes, and evidently attracts much attention from foreign agriculturists, many of whom have given sample orders for some of the improved machinery. The articles exhibited are in what is known as the "American Annex," occupying two-thirds of this building, the other third being devoted to vehicles and their accessories, and miscellaneous tools and implements.

A collection of State exhibits occupies a prominent position in the center of the building, consisting of a large variety of seeds tastefully arranged, dried fruits, wool, cotton, specimens of the different woods, and tobacco growing in pots. About this central point cluster exhibits of agricultural tools and implements of various kinds, many of them being supplied with power, and shown in actual operation. Among the most prominent exhibitors are Walter A. Wood, of Hoosick Falls, N. Y.; the Johnston Harvester Co., of Brockport, N. Y.; D. M. Osborne & Co.; Warder, Mitchell & Co., of Springfield, O. (manufacturers of the "Champion Mower"); C. Aultman & Co., of Canton, O. (manufacturers of the "Buckeye Harvesting Machine"), etc., etc. Fairbanks & Co. make a splendid exhibit of their scales, several of which are adapted to weighing by either the English method or the French decimal system—a happy idea.

The English display, located in the adjoining pavilion, occupies a much larger space, and is very creditable. All the best-known manufacturers of agricultural machinery are represented, and their exhibits show a variety and perfection of detail which have surprised many Americans who supposed that improved farm implements were peculiar to their own country. Probably England has never made a more complete exhibit of her skill in this line, and the effort will no doubt prove remunerative, for the French agriculturists, with increasing faith in the stability of republican government, are now keenly alive to everything that means improvement and development, and they stand ready to take hold of whatever promises them assistance.

The French display is remarkably full. Evidently, no trouble or expense has been spared to make it as complete as possible, and the result, due in a great part to forethought and proper organization, is highly creditable, the collective exhibits being by far the most interesting and instructive. The "French Machinery Pavilion" is mainly devoted to "Materials and Processes in Agriculture," a few of the most important deserving more than the passing notice which we can here give them. Indeed, many of the single exhibits offer sufficient material for special articles. The Gennevilliers exhibit illustrates in detail the method of irrigation adopted in the Plain of Gennevilliers, located six miles from Paris (nearly opposite San Denis), where the sewers of Paris pour out their immense tide of refuse. Samples of this sewerage are shown in bottles. It consists of a thick, black, greasy liquid. What to do with it was for a long time looked upon as a difficult problem. To let it escape into the Seine—a comparatively small stream, as rivers go in America—was not only to pollute its waters, but to waste a valuable fertilizing agent. But how to utilize it! Somebody had a happy thought—to conduct it to Gennevilliers' Plain, and use it for irrigation. This plan has proved a complete success, and led to developing one of the most extraordinary agricultural districts in the world. A sort of miniature lysimeter is on exhibition, 2 ft. by 18 in. and 3 ft. deep, with glass sides, showing the character of the soil thus fertilized, and with four cocks in the bottom, to let out the moisture, and admit of its being analyzed. A variety of specimen fruits and vegetables, grown on soil of this kind are shown, all remarkable for their great size, and healthy appearance. A large variety of natural and artificial manures, are shown in the same building, many of them accompanied by interesting reports upon them, and on the results that have attended their use.

Crossing the foot-bridge over the street, we enter now, Pavilion No. 1, devoted to "Agricultural Products," including seeds, geological collections of soils from different sections of France, various fruits and grains of all kinds, feed for animals, specimens of timber, wool, beets and beet-sugar, hand-tools, churns, models showing the diseases of cattle, and accompanied by suggestions as to their treatment, artificial cow and goat-milkers, etc., etc. The most prominent displays in this building are the following: The collective exhibit of the Department of the North, including a remarkable display of wheat, flax, sugar-beets, etc.; the exhibit by the Arcy Dairy Farm, owned by L. Nicholas; exhibits of teazles, poppies, and coniferous seeds; a variety of views showing the plan and arrangement of model farms; and that of A. Bignon, of Thenneville, Department Allier, consisting of thirty water-color drawings illustrating the comparative condition of his farm in 1849 and 1878.

Pavilion No. 2, "Materials for Agriculture," is mostly filled with plows, which are shown in a great variety—nearly all of them being provided with wheels. Among them are scattered numerous machines for sowing and harrowing, hay-cutters, and boilers for preparing food for cattle and pigs.

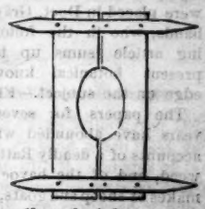
Pavilion No. 3, "Agricultural Products," includes collective exhibit by the *Société Centrale d'Agriculture de Meurthe and Moselle*, showing wine, wool, hops, etc.; a huge diagram representing an analysis of different varieties of feed given, from 1873 to 1878, to the horses employed by the *Compagnie Générale des Voitures* in Paris (If their condition is a safe indicator, beware of feeding American horses on the same system); samples and analyses of different soils in Eastern France; a beautiful model of the Cosdon Farm (G. Cuision, proprietor), in Canton d'Eroy-Aube, France; exhibits of honey, pelts and potatoes; silk worms and silk culture, shown in all stages; a large exhibit by *L'Ecole Practique d'Agriculture*, of St. Remy, Department Haute, Saone, France, including working drawings and plans of farms, with arrangement of the different buildings, a working model of a piggery, executed by one of the pupils of the school; economical herbs; oils; a grand exhibit by the *Ferme Ecole de la Piletière*; working models of stables and farm buildings, made after the "System Tollet" (address, No. 16 Rue de Grammont, Paris); and lastly, an exhibit of the method of mechanically feeding and fattening poultry, etc., accompanied by a fine series of pictures illustrating the process.

Just in front of Pavilion No. 3 is a smaller structure, always crowded with visitors, which contains a number of incubators, and chickens and ducks in all stages of development; another containing model stables; and a third devoted to cut-flowers, which, to the writer, was one of the most fascinating resorts on the grounds.

Near the bridge which leads to the Trocadero is still another great building in which France displays the results of her persevering efforts to develop to the utmost her agricultural resources, and it somewhat tones down the opinionated American who has previously been sure that his country is ahead of the world in all that pertains to agriculture. France, with a territory smaller than that of the single State of Texas, shows her agriculture to be in a condition which America may well study and emulate.

PARIS, *August 13th*, 1878. G. W. W. H.

A Yoke for a Sucking Cow.—"J. W. S.," sends a method of yoking a sucking cow, so that she cannot exercise her disagreeable habit. The yoke is made of two boards, 8 inches wide, and 2½ feet long, hollowed out to fit the animal's neck when put together, as shown in the cut. The yoke is held together by two cleats, with two bolts each; the ends of the cleats are pointed, and project a few inches. When the yoke is hung upon a cow's neck, and she turns her head to suck herself, the pointed cleats come against her side, and effectually prevent her from reaching her teats.



Cutting Large Logs for Firewood.

"A Subscriber" wants a method of using a horse-power with a drag-saw for cutting large logs into firewood. A simple arrangement for doing this may be made as follows: A drag-saw is attached to the balance wheel of the horse-power, the wheel having a crank rod attached, as indicated in the illustration. This rod may be made of tough hickory or oak. The saw is pivoted to the shaft, as shown in figures 1 and 2. The forward part of the crank rod rests and slides in a groove or guide in a post of the foundation timber (fig. 1). This guide is arranged so that the saw will not drop lower than the bottom of the log, and not cut into the log carriage. In figure 2 the crank is made to give a reciprocating motion to the saw by the lever, *a*, the guide being at *b*. The log carriage may be a common sled, upon which the log may be rolled and drawn to the saw; the log should rest upon rollers so as to accommodate the saw, and be blocked up to keep it steady. The supporting frame is shown in section in both of the above illustrations.

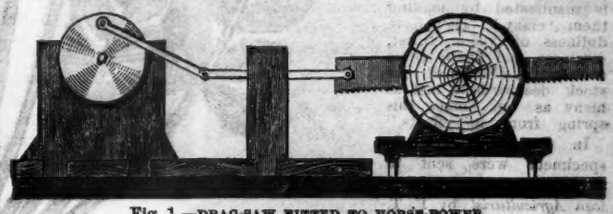


Fig. 1.—DRAG-SAW FITTED TO HORSE-POWER.

Fig. 2.—SHOWING CRANK AND LEVER ATTACHMENT.

The Animal Poison of the Far West.—"Loco" or "Crazy-Weed."

BY PROF. ASA GRAY.

[For several years there have been vague reports concerning the poisoning of domestic animals by some plant or plants in the far West, but we had been unable to learn anything positive concerning it. When Doct. Gray started last year with Sir Joseph D. Hooker to explore portions of the Rocky Mountains and California, we directed his attention to these reports, and asked him to endeavor to ascertain something definite concerning the trouble and the plant causing it, but his journey was made too late in the season for him to learn much concerning it. Since then letters and specimens have come from those having a personal knowledge of the injury to animals; these were placed in Doct. Gray's hands, who in the following article sums up the present botanical knowledge on the subject.—ED.]

The papers for several years have abounded with accounts of a deadly Rattle-weed, and of the havoc it makes of sheep and goats, as well as other cattle, in the southern parts of California. The following are examples of the letters we receive in respect to this notorious cattle-poisoner of Colorado.

Early in May specimens of the plant came through the kindness of a friend from a drug firm in Hutchinson, Kas., who wrote:

"We send a sample of a plant called by Mexicans and Spaniards 'Loco,' and by our stock dealers, 'Mad-weed,' 'Crazy Plant,' etc. It is death to cattle, sheep, and horses, and seems to be known only in a strip of country from Indian Nation, westward to California. The peculiar influence on stock is manifested by making them 'crazy.' They have dullness of vision, thirst, dizziness, and finally coma and death. Some of our stock dealers have lost as many as ten horses this spring from its effects."

In the following June, specimens were sent to the Editor of the *American Agriculturist* by F. T. Brooke, Esq., of Huerfano Co., Col., who wrote:

"When eaten by stock it renders them perfectly crazy. It is called by the Mexicans 'Loco' or 'Crazy-weed.' A few mouthfuls will not affect an animal, but he soon becomes attached to it as a man does to whiskey, and will eat nothing else. The animals eating it are affected differently: some become perfectly wild, refuse to be ridden or worked, while others become listless, stupid, and unfit for anything. Some pine away and die; others live on year after year, but are utterly worthless, unless stabled and allowed nothing but hay and grain; under such treatment some recover entirely, but are apt to commence eating the weed again if turned out to graze."

In order to obtain all the facts possible, the Editor addressed to Mr. Brooke a series of questions, to which the following came in response, and will indicate the character of the questions:

"To the best of my knowledge and belief, the 'Loco' is the plant that does the damage. I have seen horses eating this weed by the hour, without touching anything else, and these horses were affected as described in my first letter. Although there is great difference of opinion in regard to another weed that we have, which seems to be fatal to cattle only, all stockmen agree that 'Loco' is the weed that affects our horses. There are very few mules in my immediate neighborhood, and I have never known any to be injured by it, but oxen and cows are affected the same as horses. But I do not think they eat it as readily as horses, for we have very few injured by it, whereas I have known of an entire herd of horses being injured more or less by it. We have no hogs, except what are kept up. I do not think sheep are injured by it. I don't know that they ever eat it; I have seen them in the midst of it, and could not see that any of it had been eaten. I do not think it affects the bowels or urine. I have heard (but won't vouch for the truth of it) that the brain of horses dying from eating the weed, is entirely destroyed. Hence a legend among some of the cow-boys, that it is a worm in the weed that finds it way from the stomach to the brain, which it eats up. I know of no cases where horses died immediately from eating it. I do not think, as a rule, that it is fatal. It is supposed to be equally active at all seasons, but I think horses acquire a taste for it in the spring: it is one of the first green things they can get, and they eat it in preference to the old grass. If kept up until the grass gets a good start, they scarcely ever touch the weed. I have never had any horses affected by it, as I feed hay and grain until June, and commence again when the first snow falls. Animals are injured by it, I think, regardless of color. Here, where I live, at the foot of the mountains, the plant is common everywhere. I have none in my pastures, having taken the precaution to dig it up, but I understand from others that when cut and dried with hay it is not injurious."

THE "LOCO" OR "CRAZY-WEED" OF THE FAR WEST.—(*Astragalus mollissimus.*)

The plants pointed out to us in both regions, or sent for naming, have all been of the Leguminous family, and of the Astragalus tribe.* The species to which this damage is attributed in the plains of Colorado, proves to be the *Astragalus mollissimus* of Torrey—a very downy species, as its name indicates—and to show what it is like we have here given a figure of it. We never found this species on the mountains. But there the same ill effects are charged upon plants of similar appearance, belonging to a nearly related genus, *Oxytropis*, mainly to *O. Lamberti*, which abounds at all elevations up to 8,000 or 9,000 feet. The botanical difference between these plants is so little that they might all be counted as species of *Astragalus;* but there is reason to think that this particular *Astragalus* of the plains of Southern Colorado is much the most dangerous. For this species is not found as far north as Wyoming and Nebraska, where the *Oxytropis* abounds on the plains; and there we never heard of this trouble. There was a prevalent notion that plants of the Pea tribe (Papilionaceous plants) generally are innocent, if not wholesome. No one suspected a tribe which gave us peas, beans, lentils, and the ubiquitous pea-nut, and supplies such fodder as does Clover, Medick, Lucern, Vetch, and Cow-pea. In the first edition of his "Natural System," Lindley wrote: "The general character of this tribe is its nutritious, or at least, wholesome properties." Later, the note is changed, and in the "Vegetable Kingdom" he declares of the order, "that upon the whole it must be considered poisonous, and that those species which are used for food by man or animals, are exceptions to the general rule; the deleterious juices not being in such instances sufficiently concentrated to prove injurious." What a pity that our cattle are not better acquainted with the corrected rule! In Europe, and in the Atlantic States, no harm is known to come to cattle from want of proper discrimination. But when European flocks were taken to Australia, and to pasture and forage almost wholly new, thousands of sheep perished in the Swan River

* But Mr. Sereno Watson, when in Utah, was shown a "Crazy-grass," growing along the banks of the Jordan, which was *said* to craze horses that fed on it. The grass was *Phalaris arundinacea*, the Reed Canary Grass, which has always passed for good fodder, and was never known to affect the intellects of horses or cattle in other parts of the country or in Europe. Probably the grass got the bad reputation, but some Astragalus did the deed. But there are "Crazy Grasses," one in S. Africa, one in Mongolia. Even the most reputable families—and the Grass family is at the top of the list—may have some disreputable members, like the "Drunk Grass" of S. Africa.

Colony in consequence of cropping the leaves of some leguminous plants to which they were attracted. What made the matter worse for the botanists, was that the very plants which did the mischief had been recommended by one of them (Mr. Preiss, a German,) "as the best thing the Agricultural Society could cultivate, as artificial food for stock." But another botanist, Drummond, a canny Scotchman, got up some experiments, and proved that the people were right in charging the damage to these very species (of *Gastrolobium*) which the German botanist on general principles, expected to be innocent and useful.

Fig. 1.—REMOVING THE BALL.—(*See next page.*)

The same plants are fatal to goats, and even to cows and horses. The symptoms, as described, are almost exactly like those produced by the Loco-weed. In other parts of Australia, species of a different genus (*Swainsonia*), very like *Astragalus*, and like the Bladder Senna (*Colutea*), destroy cattle in the same way. Now the leaves of Bladder Senna, like those of true Senna, contain some *Cathartine*, and purge but do not poison. Those of the poisonous species in Australia are found to contain an alkaloid, apparently *Cytisin*, to which the injurious properties are due. What we have to suggest, is, that the herbage of *Loco*, and of some of the Californian *Rattle-weeds*, should be submitted to chemical analysis, to determine if they contain an alkaloid, and if it is the same or similar to *Cytisin*. No antidote has yet been found, so far as we know. If any should be discovered, and if the poisonous principle proves to be essentially the same in Australia and in the United States, the same treatment would be applicable to both. All that the botanists can now do is to indicate the source of the trouble, and to offer the poor consolation that this is not a new thing under the sun. The next thing is to learn, if possible, the exact nature of this fatal affection. For this it is desirable that some competent persons, both in Colorado and California, should make *post mortem* examinations of the stomach and brain of some of the various affected animals, of sheep as well as cattle and horses.

Early Peaches—The "Waterloo."

When "Hale's Early" made its appearance some 15 or more years ago, it marked an advance in peach culture, much as the "Early Rose" did in potato growing. In both cases we have gone far in advance of these, but they showed possibilities, and served as a sort of standard for the comparison of new comers. The fair quality, great beauty, and especially the earliness of "Hale's Early," caused it to be very widely and largely planted. But a general disappointment followed, for save in a few localities the fruit, as soon as about to ripen, commenced to decay, and it at present proves profitable in the hands of but very few. The "Early Beatrice" came next; it was claimed to be earlier than Hale's and free from its fault; but it proved quite too small for profit, as did some others of Rivers' seedlings introduced at the same time. Following these were numerous native seedlings, largely from seed of Hale's Early, until at the present time the number of varieties claiming the title of "earliest and best" is so large that even those who make a specialty of raising peach trees and peaches can hardly keep the run of them. These new varieties come from several States, and each season adds to their number. Several of the prominent new early peaches are so nearly alike that one so experienced as Charles Downing, in speaking of some of them in a recent article in "Gardeners' Monthly," says: "If the four kinds were put in a dish it would puzzle a good pomologist to separate them, and yet there is no doubt but they are all distinct kinds." This close resemblance is not to be wondered at, when we recollect the marked tendency of some varieties of peach to reproduce themselves in their seedlings, and it is very probable that the kinds so much alike are seedlings of the same variety. The two most prominent of the newer early peaches are "Amden's June" and "Alexander," varieties so nearly alike that some claim them to be identical. We find that reports differ as to the relative earliness of these, each being claimed in different localities to be earlier than the other. Our correspondent, R. J. Black, Fairfield Co., O., found that both "Alexander" and "Amsden's June" commenced to ripen June 28th, and that half the crop was ripe on July 4th. He says of these: "These two are very much alike in tree and fruit.... 'Alexander' is probably a little the larger, while 'Amsden' is the greater bearer. Not that 'Alexander' is at all shy, but 'Amsden' is profusely productive and imperatively needs thinning. Both are of fair size, attractive, and of good quality."—We agree with Mr. B. that ripe peaches in Fairfield Co., O., the first week in July, "is something to be grateful for."

Fig. 2.—THE BALL REMOVED.—(*See next page.*)

Knowing Mr. Randolph Peters, Wilmington, Del., to be largely engaged in growing peach trees, and to be thoroughly familiar with the orchards of the great peach district comprising Delaware, and parts of Maryland and Virginia, we requested of him a report of the new early peaches during the past season. Mr. P. writes substantially as follows:

"There are so many new extra early peaches that it is hard to keep up with them, and it will be some time before all are properly tested. The following six varieties have been fruited now for several years, viz., Early Beatrice, Early Louise, Early Rivers, Early Alexander, Amsden's June, and Brigg's Red May, and I am fully satisfied the Amsden June and Early Alexander are the best so far as tested. Messrs. Shinn & Co., of Alameda Co., California, wrote me July 22d last, that they had fruited extensively Amsden's June and Early Alexander, side by side, and that they could really detect no difference in the time of ripening or the quality or value of the fruit, and I have the same reports from

NEW EARLY PEACH—"WATERLOO."

Georgia, Texas, and Florida. The Early Beatrice is too small, while Early Louise and Early Rivers are too late to come in competition with Amsden's June and Early Alexander. Reports from all sections place Amsden's June and Early Alexander as the best so far as tested. Among the many new extra early varieties on trial there may be some superior to these, but I think it would be well to wait until they are fully tested before planting largely of them."

While the matter of early peaches was under consideration we received, on July 21st, from Ellwanger & Barry, of Rochester, specimens of a peach of such fine appearance, good size, and, considering its northern locality, marked earliness, that we had a sketch of it made, and asked for further particulars. This variety seems to be of sufficient promise to warrant the engraving here given. The name "Waterloo" has been given to this peach, as it originated in a private garden in a town of that name in Western New York. It was first brought to the attention of Ellwanger & Barry last year, when they were so much pleased with it that they bought the tree and commenced propagating from it. The first fruit was picked on July 14th last, and on the 19th the fruit was over ripe, this being earlier than the Alexander and Amsden in neighboring gardens. The following description is by the skilled pomologists who sent us the specimens:

Size—Medium to large; for an early peach very large—specimens measuring nine inches in circumference, and weighing five ounces. A peach picked July 14th inst., measured *ten inches* in circumference.—*Form*—Round, with a deep suture on one side from stem to apex; stalk cavity deep; apex slightly depressed.—*Color*—Pale whitish green in the shade, marbled red, deepening into purplish crimson in the sun.—*Flesh*—Greenish white, with abundance of sweet vinous juice; adheres to the stone like Hale, Amsden, Alexander, and all of that class.—*Glands*—Reniform.—Season in Waterloo, N. Y., this year, July 14th to 19th, and might have been picked on the 12th.

Messrs. E. & B. have since written that the Waterloo proves to be an excellent keeper, specimens that had been picked a week showing no signs of decay. We had noticed this peculiarity in the fruit that was sent us; after making the journey from Waterloo to Rochester, and thence to New York, the specimens were placed in the artists' hands, and when they returned to us after the lapse of two days, were still in good eating condition. Of course the real value of this peach will not be known until it has been cultivated in other and widely separated localities, but it at present promises to mark a great advance in early peaches—a promise which we trust its future may substantiate.

Preparing for Winter—Repotting

Those who cultivate house plants are apt to postpone preparations until cool nights, if not actual frosts warn them to bring their plants under cover. It is a great mistake to thus delay this work, and those who have heeded our monthly "Notes" do not need our present reminder to attend to it without delay. Plants that have been turned out of their pots and have been in the open ground all summer, often become over-grown, and too large to take up and pot for the window garden; hence we have at various times during the season, advised starting new plants from cuttings, as vigorous young specimens are usually more satisfactory than old ones. Still there will be some that it may be worth while to take up, and these should be attended to at once. When a plant is changed from a pot to the border, the heretofore cramped roots soon take a new start, spreading as if they enjoyed their new liberty, and soon occupy several times their former space, while the upper portion of the plant soon grows proportionately large. When such a plant is taken up in the fall it will have a mass of roots, not only far too large for its former pot, but too large for any pot that one would care to give it. The roots must be cut away to a convenient size, and the top must be reduced also. Here is the point where novices fail; they dislike to part with any of the luxuriant new growth, but set the plant with all of its top and only a part of its roots in a pot, and expect it to flourish. It may be taken as a general rule in all transplanting, whether with house plants or with trees—the top must be reduced in proportion as the root surface is diminished. Plants taken up from the open ground must be placed in the shade until they recover, and they must also be sheltered from the drying influence of the wind. A large share of window plants are properly kept in pots during the summer, with the care advised in our monthly "Notes." Before these are taken to their winter quarters all the preparatory work should be done. If they do not need repotting, the pots will require washing, and it will be well to remove the surface soil and give a dressing of fresh earth. It is likely that many will be found on examination to require new pots. Whenever the roots have filled the ball of earth and have begun to form a mat on its surface—for when they reach the pot they can go no further, and begin to coil around the ball—then another pot is needed. The examination of the ball is a very simple matter, but it often astonishes a novice to see the ball removed, examined, and replaced, by one accustomed to the operation. To show the manner of removing the ball of earth from the pot, we present on the preceding page two engravings prepared for "Winter Greeneries at Home," an excellent guide to the inexperienced in window culture. To remove the ball, spread the left hand over the top of the pot, allowing the stem of the plant to pass between the fingers, and with the other hand on the bottom, invert the pot, as shown in figure 1; holding it in this position, give the edge of the pot a downward tap against the edge of a bench, or similar surface, and the ball will usually become loose, and allow the pot to be lifted off, as shown in figure 2. If it does not drop out at the first tap, repeat, giving stronger blows, and on other parts of the rim of the pot. A plant must be very much pot-bound if it can not be readily removed from a pot of the proper shape, by this method. In case this does not succeed, pour a little water around the edge, and allow it to soak awhile; a very bad case may require the use of a case-knife, which is to be run between the pot and the ball, though this will rarely be necessary. After the ball has been examined, put on the pot again, turn it upright, and settle the ball in its place, by setting the pot down with a thump. If the ball is well filled with roots, and they seem disposed to curve around the ball, as if in search of fresh earth, it needs repotting, changing to the next larger size pot. The pot, if an old one, should be clean, and if a new one, it should be soaked in water, until the pores are filled, and allowed to drain off, so that the surface will not be wet when used. Place a bit of broken crock over the hole in the bottom of the pot, put in soil enough to bring the ball up to the proper hight, and then having set the ball in the middle, fill in the space between that and the sides of the pot with soil, using a piece of shingle, or something slender to press down this new earth and make it firm, give water, and the job is done. It is well to remove whatever of the old soil will readily come away from the top of the ball.

A New Method of Multiplying Plants.

One Ossenkop, an Austrian, has published a work on, and contrived various appliances for, a method of propagating plants which he claims to be new. The inventor, it appears, has been all over Europe and parts of Asia and Africa to introduce his novelty—for which, no doubt, he receives a consideration. In a recent number of the "*Revue Horticole*," its correspondent, J. B. Weber, gives an account of the method of Ossenkop, which turns out to be not so very new, and it is very likely that it is, after all, an American invention. In 1866, in conversation with that well informed horticulturist, Doct. John A. Warder, we mentioned the difficulty attending the growing of the Delaware and certain other grape-vines from cuttings in the open ground. He remarked that his friend, Wm. Patrick, a nurseryman at Terre Haute, Ind., grew such cuttings without difficulty, and would no doubt communicate his method. We accordingly wrote Mr. Patrick, and with the liberality that characterizes a true horticulturist, he at once complied with our request, and gave his plan. Mr. Patrick did not run about the country selling his secret, nor did he put it in a little pamphlet of half a dozen pages and charge a dollar for it. He not only sent it, but added: "If you can make any use of it for the benefit of horticulture, please do so, as anything of this kind should be open to all." Mr. P.'s article was published in the "Horticultural Annual" for 1867, and some time after it was given in substance in these columns. The method is in principle precisely the same as that of Ossenkop, though that person mystifies it by making it appear that certain double-bottomed boxes and other "fanciful applications" are necessary. As this method of striking cuttings may be new to most of our present readers, we give it as a timely article, and insist that, unless the Austrian can show prior publication, the credit belongs to Mr. Patrick. Mr. P. says:

"Before the ground freezes, I make the cuttings, from four to six inches long, with one or two eyes on each. I prefer to have two eyes, as such cuttings seem to be better able to withstand the drouth we are apt to have the last of May or the first of June. The cuttings are tied in bundles of about fifty each, and their lower ends are puddled by dipping them half their length in mud, made of loamy soil, mixed with water to about the consistency of cream. A cold frame has been previously prepared with good sandy loam, but not rich. In this I place the cuttings, *top end down*, and sprinkle in fine earth, so as to fill all the spaces in and between the bundles. The crevices all being filled, sufficient earth is put over the cuttings to cover them about four inches deep, and they are left in this condition until they have been rained upon, and it begins to freeze. I then cover the bed with a mulch of leaves or straw, and over this a shelter of boards. If I wish to plant early in the spring, I remove the boards and mulch, and place a sash over the bed, taking care to leave an opening for ventilation; water is to be given as needed. In about five weeks the cuttings will almost all be found to have formed roots from one to three inches long, while the buds have swollen and are just ready to burst. The cuttings are now in a condition in which they require careful handling, and they should not be allowed to dry. I usually set the cuttings, as they are taken from the frame, in a bucket containing some water, and in this way carry them to the place where they are to be planted. In planting, I set the cuttings so that the upper eye is just below the surface, and press the soil firmly around them. Treated in this manner, the cuttings will nearly all grow, and make very strong vines. If there is no cold frame at hand, another plan may be followed. The cuttings being prepared as above directed, are buried, *lower end up*, and four inches deep, in some place sloping towards the south, with the ends inclining towards the south; they are to be covered with a mulch, in the same manner as described for those in cold frames. The mulch is removed in the spring and the earth exposed to the sun. Cuttings treated in this way will not be quite so early as those in frames, but I think they are about as good. There is some danger that those in frames may get too much advanced before the ground is ready to receive them."

It will be seen this is an ingenious and simple method of applying the heat of the sun as "bottom heat." The lower ends of the cuttings being puddled or "grouted," are in a condition to slowly callus during the winter, and when they are exposed to the sun's rays in spring, the roots are induced to push, while the upper ends of the cuttings are further down and beyond the reach of the heat, and the buds kept dormant. The cuttings are, in fact, in just the condition they would be in the cutting bench—the lower ends warmer than the upper portion. This method can no doubt be usefully applied to other cuttings than those of the vine. With many cuttings, *time* is essential to success, and this can be allowed by this method more economically than in a propagating house.

Notes from the Pines.

Did you ever notice that towns and cities have their horticultural, as well as their architectural features? If asked what were the striking features of New Haven, Conn. I should say, firstly, its elms (of course), secondly, its abundance of well kept grass, and thirdly, the profusion of

Funkias or Day-lilies.

In a visit to the place in the last days of August, we found it all "ablow" with these pleasing flowers. There is so much confusion about Funkias, that one is never sure of a name, but I took this to be, as seen from the street, *Funkia subcordata*, also known as *F. alba*, *F. cordata alba*, *F. grandiflora*, *F. Japonica*, *Hemerocallis Japonica*, and I do not know by how many other names. It makes a mass of fine green foliage with just above it, large racemes of long white flowers, in the greatest abundance. In nearly every yard and garden, wherever there were any flowers, this was quite sure to be seen. There were Funkias in large clumps, Funkias in large masses, Funkias in rows, and more Funkias—and a most pleasing sight it all was.....I wonder if the

Second flowering of Wistaria

has been so general elsewhere as it has been about here. The vines—I refer to the Chinese species—in July and August produced flowers, and in some cases quite profusely. I suppose that a severe frost we had at the time interfered with the spring blooming, and we have it at this late season to keep the general average good....It is gratifying to find a plant that one has been somewhat enthusiastic over, and has taken some pains to bring into notice when first introduced, stands the test of several years' cultivation, and fully sustains one's first impressions. This has been the case with the

Variegated Eulalia Japonica.

one of the finest of all ornamental grasses. A row some 40 feet long, and the foliage full six feet high is stately as well as handsome, and a large circular bed on the lawn filled with it, elicits many a prolonged O—h! from passers by on the road.

The Zebra-striped Eulalia

in which the markings are singularly cross-wise, we feared would be disappointing from the lack of strong contrast in the colors, small plants being far from striking. Both these varieties of Eulalia are examples of the fact that we have often noticed—that one can not properly form an opinion of the merits of herbaceous plants until they have become thoroughly established, and have made themselves quite at home in their station....From the comments in the English journals on the

Fruiting of the Japan Quince,

it appears that this is of rare occurrence there. I refer to the brilliant early-flowering shrub generally called *Pyrus Japonica* with us. Having several specimens that bear regularly, and often profusely, I supposed it did so generally. W. C. Strong, of Brighton, Mass., in an article in "Gardeners' Monthly" for July speaks of having 15,000 seedlings of *Pyrus Japonica*, from which we may infer that the plant fruited freely with him. This gentleman wrote the article above mentioned to announce his experiments with the shrub as a new stock for the pear. He found the buds to "take" on it readily, and the growth so pleased him that he proposes to test the stock on the large scale....Spring-flowering shrubs are abundant enough, but those that bloom in August and later are so few that I am always glad to add to the list.

The Chaste-tree (*Vitex Agnus-Castus*)

is very old, but we rarely see it, yet it is very satisfactory with its abundant long spikes of lavender-blue flowers, and its foliage is also pleasing. With me—not far from New York—it is not hardy enough to become a tree, as the winter kills it nearly to the ground, but a dense mass of new growth comes up every season and flowers most abundantly. Another shrub, blooming at the same season, is

Lindley's Buddlea (*Buddlea Lindleyana*),

which gave me a pleasant surprise by proving itself hardy. It is a favorite shrub with P. J. Berckmans, Esq., from whose extensive collection at Augusta, Ga., it was received. It was taken up and housed for one or two winters, but the old plant, having grown too large, was left out a few years ago, expecting, of course, that it would be the last of it. To our great surprise it bloomed the next fall as freely as ever, and is now (Sept. 1st) full of its gracefully drooping clusters of dark violet colored flowers. This is but one of a number of similar instances in which I have left out plants usually regarded as belonging to the greenhouse, and found them to be hardy...."The Meadows," as the vast tract of marsh is called, just back of the Palisades, and which is traversed in one direction by the Hackensack River, and in the other by the Erie Railroad, present a great variety of the vegetation common to such localities. Conspicuous among this is the

Swamp Rose Mallow (*Hibiscus Moscheutos*),

forming in places clumps so showy as to attract the notice of persons usually indifferent to such matters. This is the plant which, some 15 years ago, was offered at a round price as "American Jute," and which met the same fate that has befallen many another new "fibre plant." Still it makes a showy plant for the garden, and was 20 years ago much more common in cultivation, as *Hibiscus palustris*, than at present. The large hollyhock-like flowers are six inches or more across, and usually of various shades of rose-color, though sometimes white; I discovered from the cars one with white flowers with a crimson eye, and one of the neighbors found a pure white one, both of which have been promoted to the garden. The California species, *Hibiscus Californicus*, much resembles this in the form of the flower, which has a white corolla with crimson at the base, but the foliage is quite distinct from that of ours. The

Halberd-leaved Rose-Mallow

of more Southern localities (*Hibiscus militaris*) is a fine garden plant; its stems—five feet or more high—are often purplish, its leaves handsomely lobed, and its flesh-colored flower about the size of our common species....Is there a handsomer fruit than

Clapp's Favorite Pear

when in perfection? Yet it is one of the most unsatisfactory of all pears. A friend who is given to putting things strikingly, says it is one of those pears that have to be "picked by the clock." If left a day or two too long on the tree it will be sure to decay at the core, and if gathered too soon it will not color and is of poor flavor. It is good when one gets it, but the trouble is to get it. After all there is no pear of that season—middle of August—equal to that beautiful little gem of a fruit, "Manning's Elizabeth."

Blackberries in Indiana.

BY STEELE BROTHERS, LA PORTE, IND.

[The Messrs. Steele have given us from time to time, a report on their Blackberries, in the cultivation of which they are extensively engaged. Their experience shows that it is not well to be hasty in deciding on the merits of a fruit; the "Snyder," which at first did poorly with them, they now regard as a valuable market variety.—EDS.]

We fruited six varieties of blackberries this season, and give our experience. First to ripen is

WILSON'S EARLY.—It is the largest and finest looking berry we have seen. Quality poor, but on account of its size and fine appearance, sells readily at a good price. The plant is tender; were it hardy, it would be our most profitable market variety.

THE SNYDER ripens next, and is the hardiest variety we know of. It has only failed to yield a crop once since we have known it. It is very prolific, the berries ranging from small to medium in size; it ranges second as to quality, and the bulk of the crop ripens within 10 days.

THE KITTATINNY begins to ripen soon after the "Snyder," but does not come on so fast. The crop is about three weeks in ripening. Old bushes well cultivated, will yield as many berries as the "Snyder," but being considerably larger, they will measure more bushels. It ranks first in quality, bringing readily from two to three cents per quart more in our market than the "Snyder." In large cities the difference would be greater.

THE WESTERN TRIUMPH is about the size of the "Snyder," and of first quality; the bushes are thrifty and very productive.

THE MISSOURI MAMMOTH is not quite so prolific as the last named, but the berries are larger and the quality is excellent.

TAYLOR'S PROLIFIC is very sprawling in its habit of growth. The berries are so much like the "Kittatinny" in size, shape, and flavor, that it is very difficult to tell them apart.

We consider all of these last three worthy of a general trial. They appear to be hardy, though we have not tested them long enough to be certain. The conclusion we have reached, is, that the "Snyder" is most profitable for general cultivation with us. It is the hardiest, and while young, the most prolific; plants set this fall or next spring will bear a good many berries in 1880 and nearly a full crop in 1881. While the "Kittatinny" and "Wilson's Early" set at the same time will have very few berries before 1881 and no full crop before 1882. The "Western Triumph" and "Missouri Mammoth" also bear well the second year.

The tops of the "Kittatinny" and "Wilson's Early" do not live through the winter here more than once in two or three years. For this reason, though we shall not discard them, we shall set more largely of the "Snyder," that we may be sure of a crop every year.

THE HOUSEHOLD.

☞ *For other Household Items see "Basket" page.*

Home Topics.

BY FAITH ROCHESTER.

Fine Flour and Graham.

I am heartily glad of the modern improvements in grinding wheat, which give us flour as fine and white as the old superfine flour, yet far more nutritious. Good millers assure us that the "*new process*" flour contains an increase of nearly fifty per cent of the most valuable food constituents of the wheat. Bran is the only portion of the wheat rejected by the new process, contains some important elements for human growth, but many doubt whether these are most easily obtained by making bran an article of diet. Moleschott, a German scientist, investigated this subject carefully, and concluded that the use of unbolted flour had been too strongly urged. He says that only persons of very strong digestive powers, and engaged in active life, can digest the bran and appropriate its nutritive matter. Many find the digestive organs greatly irritated by the bran, "and thus undesirable results attend an abundant supply of substances which, though highly nutritious, are digested with difficulty, or not at all."

The author of "Foods," Dr. Edward Smith, gives a similar opinion. He thinks that the coarse bran not only leaves the body, undigested in most cases, but in its progress brings away much that would otherwise be worked up into bodily nourishment. The action of the bran in cases of constipation is well known—a mechanical action sometimes very useful when too "rich" and concentrated food is used, or where sedentary habits render the bowels inactive. But people of average health, leading moderately active lives, as all children do, and using vegetables and fruits as part of their daily diet, have no need of a steady mixture of bran in their food. It has long seemed to me that the instinctive pleasure most of us have in food of fine texture, as compared with that which feels coarse and rough in the mouth, need not be disregarded in the preparation of so important a thing as bread. So when I use graham flour, which is decidedly branny—such as the northern winter wheat makes—I either sift out the bran, or mix it half and half with white flour. But I avoid the sacks of graham labelled "Best white winter wheat," and either get the new process graham, which has no perceptible

bran, or fresh ground unbolted spring wheat. I am speaking of Minnesota grain.

Why use Graham Flour at all?

Because it adds a pleasing variety to our bill of fare. I should be very sorry to banish graham pudding (or mush), and graham gems and crackers from our table. Besides, I do not doubt that the best graham flour—that which has the bran finely cut to pieces and in small proportion to the rest of the flour—is better for the common use of many people who live mostly on concentrated food, or use much meat, cake, and pastry, than bread made of fine flour. Last year I lived close beside a large flouring mill for a few months. It was a mill using the modern "new process" machinery, and grinding the best of "gilt-edged" as well as "family" flour. When I wanted graham, I sent a sack to the mill, and received into it the pure unbolted wheat-meal before it had undergone any sifting process. I could not ask for better graham flour—made as it was from the best Minnesota *spring* wheat. This, however, was not like what I buy in the city labelled "New Process Graham," though I sometimes get the same labelled "Fresh Ground." I seldom use the highest priced "gilt-edged" fine flour. It makes beautiful loaves, and it may be true, as I am told, that a sack of it goes much further "than the common grade flour," but it seems to empty the pocket-book faster, and a friendly miller, who makes both kinds, has assured me that the "grade" or "family" flour, is just as nutritious as ground wheat can be with the simple bran extracted. Certainly the bran we get now-a-days for our cows, is quite different from what we used to get, years ago. It is so cleanly peeled from the wheat as to appear like very insufficient food for any animal unless mixed with corn-meal or shorts. The old-fashioned bran had clinging to the inside of the husk some of the most nourishing food material of the wheat, so that when this was bolted or sifted away from the white flour, the latter was left poor indeed, and deserved the outcry made against it.

Good Gruel for the Sick.

For the first time in my dozen years of motherhood, I have had a child really sick in bed, and unable to be dressed. All about that sickness I shall not tell here, but the patient and his mother have both learned important lessons. The sickness was partially the result of a degree of accidental poisoning; but we shall hereafter be more careful about the times and seasons and temperatures of the swimming baths, that the body may be found in a better condition to resist disease. I believe, with a host of others, that little boys who get interested in swimming, are liable to do themselves great injury by too frequent and too long-continued visits to the water. There was poison in the system to be got rid of, and Nature tried to rid the stomach of its contents, as one of the first intimations of sickness. She did not succeed, and as there was no warm water in the house to aid Nature's efforts, and I had then no idea of the poisoning, I let the child crawl off to bed with the bad stuff unrejected, and for a day or so, I still supposed that he would soon get about. But he would not eat, and after several days of fasting, I began to feel great anxiety about the return of his appetite. I feared that he would become so reduced in strength that we should have to bring him up on beef-tea and broths. But as the days passed it seemed less dangerous to wait patiently for the return of appetite. He lived on water, drinking it often and plentifully in obedience to his own instinct, and I could see that it, in connection with daily sponge-baths, and enemas, was helping him. One morning he asked me with some eagerness if we couldn't have fresh warm loaves of Boston brown bread brought home from the bakery sometimes next winter! Then I knew that the appetite was coming. A few hours later he wanted to know what arrowroot looked like, and what could be made from it, and thought a little cooked thin with milk and sweetened a very little would taste good. How gladly I prepared it, and fed him the few spoonfuls that satisfied him. Now I believed in my heart, all of the time, that the best food he could have along at first, would be gruel made of sifted graham, and seasoned with creamy milk, such as seems very delicious to me when I am sick. But the last graham gruel he had tasted, had been made of "branny" unsifted graham, and he "never wanted any more." So I had equipped myself with arrowroot, sago, tapioca, and ground rice, having studied the recipes for the sick in Marion Harland's book, and in a work on domestic medicine, which a neighbor lent me. But there was small demand for these after all. After one or two small meals of these prepared in the most simple manner, beef or chicken broth, with bread or crackers crumbled in, and a dessert of ripe fruit—at first grapes (the first thing he was willing to taste), or an orange, and soon a peach or a ripe apple—gave satisfaction, and as soon as he had tried a little graham gruel, made as I like it best, that alone became his favorite food. I have the water boiling vigorously, and turn into it slowly, stirring rapidly, a thin paste of sifted graham flour and water, having previously salted the water to taste. For a pint of boiling water, I should use a small half teacup of sifted graham, making the gruel quite thick. Into this I pour good sweet milk until thin enough for a rather thick drink, letting this milk scald, but not boil, in the porridge. Then I cool it, thinning again so that it can be drank, with milk—and call it *good*. So does my patient, and it gratifies me to see how eagerly he takes it. The milk is excellent nourishment, and so is the flour used, and though it would hardly support the strength of a laboring man as a steady diet, it is a useful dish where something light and nourishing is needed, especially for children.

Other Food for Invalids.

Oatmeal gruel made in the same way as that of graham flour, is excellent, only it should be cooked longer and with a less proportion of meal to the same amount of water, as oatmeal swells very much in cooking. Corn-meal gruel is not so useful, because it is more heating and less nourishing. Corn-meal needs a very thorough cooking. Gruel made of fine meal should boil at least half an hour, and it is best when one-third white flour is used with the meal, mixed with cold water before putting into the boiling water. Most of the recipes for the sick which I have found in my late search, seem to me very objectionable, on account of the seasoning. Nearly all of these gruels are sweetened with sugar (wholly unnecessary if you have fresh sweet grain, and much more likely to become sour in the stomach), and it seems to be supposed that to be palatable, food for the sick must be spiced with nutmeg or cinnamon, with the addition of lemon juice or wine, or both, while the old-fashioned dread of milk seems to prevail. Modern physicians are advising milk for weakened invalids. I recently read this testimony from Prof. Gairdner, of Glasgow University. He says: "To give wine, whiskey, and beef tea, while withholding milk, is simply, in my opinion, to destroy your patient. And the more wine and whiskey you give, the more sure you will be to destroy your patient soon, because you are thereby poisoning the blood. I believe that infinite mischief has been done in typhus fever, and in all fevers, by giving wine instead of milk. It is a fatal delusion."—As for the spices, they are often the hardest and last thing that a weak stomach can digest, remaining at the last to heat and worry the stomach that needs rest.

Common Weeds made Ornamental.

Under the above title, we last month described the manner of making large downy balls from the common thistle. After it was too late to make a correction, the lady who kindly gave us the information discovered that in describing the matter from memory, she had made an error as to how much of the prickly green cup, or involucre, should be removed from the thistle head. Instead of leaving as much as shown last month, (fig. 2, p. 343), *all* of the involucre is to be removed, that can be readily cut away, as none of it is needed. A section of the prepared thistle head, with the involucre removed, and the flowers pulled out, is here given in fig. 1. It was stated that the downy ball consists of the hairs or bristles of the "receptacle" or the bottom of the cup on which the little flowers stand; this receptacle is really the enlarged, flattened end of the flower stalk, and is indicated by *a*, in the figure; as the hairs are attached to this, all of the green and prickly involucre, may be removed without causing them to fall out. We usually test such matters before giving them to our readers, but in

Fig. 1.—THISTLE.

Fig. 2.—DOWN.

this case we had not time. The best thistle for this use, is the common large flowered species; the tall late thistle found in swampy places, has very short hairs, and will not answer. Another lady has shown us how to convert the

Seed Pod of Milkweed

into a most beautiful ornament. There are a number of species of Milkweed (*Asclepias*), some quite early, and others, especially those growing later in wet places; the pods differ much in size, but they have essentially the same structure, and any of these will answer the purpose. The pods break open when ripe by a slit along the curved side to allow the seeds to escape. Nearly all have noticed the beautiful silky down attached to the seeds, each of which has, as in figure 2, a tuft of the finest hairs to allow it to sail off on the air to some distant resting place. The pods are to be gathered when nearly mature, but before they open, as soon as the seeds are full-grown, even before they begin to brown they will answer. If a seed be examined, it will be found that the hairs are not attached to it singly, but if the tuft be separated it will leave the seed all in one piece, the numerous hairs being stuck together at the end. The pod is to be carefully opened; if it will not split otherwise, a knife may be used to merely cut a slit through it. Within will be found a body like that shown in figure 3, which is slightly united to the pod by each end, and is to be detached. It will be worth while to examine this in order to know what we are working with. A botanist would describe it as the *placenta*, with the attached seeds. The placenta, or seed-bearer, is seen at the lower end, *a*, and at the upper end, *b*, but all the rest is closely covered with the flat seeds and their down, save a narrow line, *c*, extending the whole length. The seeds are laid on with beautiful regularity, and overlap one another like the scales of a fish, while the hairs of the down lie close together to form a sort of flattened thread. In order to succeed, the most careful and delicate handling is required; as soon as the seed-bearer is taken from the pod, the lower end, *a*, is to be tied; a bit of soft cord may be used, or what is better, a very narrow ribbon; this is to

Fig 3.

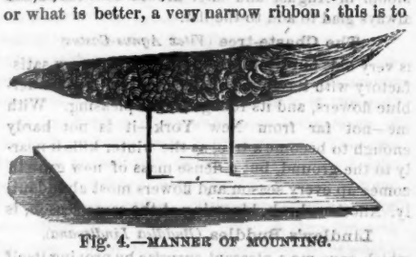


Fig. 4.—MANNER OF MOUNTING.

be tied quite firmly, as the part will shrink in drying. The projecting portion (*b*, fig. 3) at the other

end is to be cut away up to the seeds. In working with this, we found it convenient to contrive some kind of a support in order, as far as possible, to avoid handling. Two very large pins pushed through a bit of thin wood, such as a piece of cigar box, formed a stand upon which the seed-bearer was mounted, as in figure 4, the pins being thrust into the portion (*c*, fig. 3) not covered by seeds. The next step is to remove the seeds, using the point of a penknife as in scaling a fish, taking care to avoid disturbing the down; most of the seeds will come off with ease, but here and there one may need to be picked off separately. When the seeds are removed, the down will present a beautiful appearance, the closely pressed down resembling, in all but color, the breast of a humming-bird; indeed the arrangement is so regular, and the lustre so exquisite, that a sight of it is worth all the trouble, and one naturally wishes it might be kept in this state. Nothing else is now to be done but to allow the seed-bearer and its attached down to dry. Each tuft of down is overlapped and held by the one next below it, and the last, or lowermost, are tied; each is secured by the end that is, when attached to the seed, uppermost. The natural tendency is to spread, as in figure 2, but one end of each being held by the other tufts, and the hairs being stuck together at the opposite end, each tuft can only spread to form a sort of narrow balloon. As each tuft thus expands, the size of the whole mass will increase wonderfully as it dries; that from a pod of medium size being over two inches through. Should any of the downy tufts stick down and fail to open, they may be gently lifted with a needle or slender knife point. We do not attempt to show the finished affair by an engraving, as it is so delicate that it would be very difficult to do so, and black lines would quite fail to give the lustrous beauty and gossamer lightness of the mass. But the affair is as frail as it is delicate, and will not bear handling; it is best preserved under a glass shade. Such a down-cluster would work in admirably with a design in skeleton leaves, and no doubt many of our tasteful friends will find other uses for such an exquisitely beautiful natural product.

More About Soap-making.

The article in the *American Agriculturist* for July last has called out several letters from our housekeeping friends; many of these are so indefinite as to quantities as to be of little use to inexperienced housekeepers—the only ones needing instruction. The following, by Mrs. G., of Conn., gives the cold method, which is preferred by many. In giving the results of 25 years' experience, she says: "The soap-barrel should be of pine or fir, instead of oak or other hard wood—a fish-barrel, well cleansed, will answer, though the heads of these are not quite thick enough. Put into the barrel five pailfuls of lye, that is strong enough to bear up an egg, and pour to it 28 lbs. of melted and strained grease. Stir it well together, and fill it up gradually with weak lye or water, stirring well as this is added, and stir it daily for a few weeks. It will not be fit to use under three months, although it is of the consistence of nice hard jelly, and looks good enough to eat. It is still better if kept until six months' old. If one prefers to make soap with potash instead of lye, take 20 lbs. of nice *white* potash, and the same weight of strained grease. Dissolve the potash in 3 or 4 pailfuls of water in the barrel; it may take 2 or 3 days for it all to dissolve; melt the grease and pour to the potash, fill up the barrel with water, and proceed as above directed. Do not use potash soap when new, as it eats the hands badly. The proportions of materials may seem large in the above rules, but strong soap is much more effective in cleansing soiled clothes than the weak, slimy, ill-smelling stuff so often seen, and it will keep good for years. Boiled soap will be fit to use sooner than cold soap, but it is not so nice. The economical farmer's wife should have two soap-barrels, one for the old soap and one for the new, and *never use new soap*. If made of clean materials, and kept closely covered, it is nicer for the finest linen than most of the many kinds of hard soap so much in use, and does not injure the fabric."

"Aunt Peggy" writes a very pleasant letter from Otterville, Mo., in which she says if she "understands anything, it is making soap from ashes." Her instructions for making the lye are useful and explicit, but when she comes to making the soap she "is not particular about the quantity of grease" she uses, and her directions are much less definite. We give her method of managing the leach, or "hopper" as it is called in some parts of the country. She says: "Grease is grease, the world over, and the trouble in soap-making is always with the lye. I first fill the hopper with good strong ashes, that have been well burned, dampening them thoroughly, but not wet enough to drip, and let them stand two or three weeks before the lye is needed. Provide a barrel large enough to hold all the lye the hopper will make; pour water upon the ashes and let the lye run down and fill the barrel. You will find the lye very strong at first, but it will grow gradually weaker until that which comes from the ashes is of not much value. Keep trying the lye in the barrel with an egg; when the egg sinks in the lye, until all is covered but a spot the size of the thumb nail, then it is just right; stop the leach then, whether the barrel is full or not; it will not hurt, but will help the lye to stand awhile."

Household Notes and Queries.

CANNING GREEN CORN.—It having been several times stated in these columns that it was not practicable to can green corn in the family, several have kindly written to show us our mistake, claiming that they have canned it for years. We must still adhere to our original statement, as all those who have sent us an account of their method, do not properly *can* the corn, they merely put it up in jars, *pickled* in Tartaric Acid. This process was described in August last in the "Basket" on p. 287. There is so much testimony in its favor that the process seems worthy of trial.

POISON IN THE BREAD.—Serious cases of lead-poisoning occurring in Taunton, (Eng.) in houses far apart, the attending physician was at loss to account for the trouble, and water, cider, canned fruits, etc., were examined without finding lead. It was at length ascertained that all the families procured their flour at the same mill, and it was found to contain lead in poisonous quantities. An examination showed that large holes in the mill stones had been filled up with lead, which had gradually ground off and the very fine lead had become mixed with the flour, and caused the disease in a serious form.

IVY POISON.—Poisoning by the "Poison Ivy," "Poison-Oak," or in some localities, "Mercury" ("Markery"), the climber botanically known as *Rhus Toxicodendron*, is of such frequent occurrence that there are probably more domestic remedies for it than for any other trouble. The latest we have seen comes from Doct. A. S. Brown, U. S. N., who gives it in the "N. Y. Medical Record." The remedy is *Bromine*, 10 drops of which are dissolved in an ounce of Olive Oil. The mixture is applied to the affected parts three or four times a day—especially on going to bed at night; the oil is to be washed off twice a day with Castile soap. Bromine is a most volatile liquid, escaping through any ordinary stopper, and it will be necessary to have the mixture made by the apothecary as wanted, as it cannot be kept on hand any length of time.

RYE DROP CAKES.—Mix one quart Milk, two beaten Eggs, a lump of Butter as large as an egg, two teaspoonfuls of Cream of Tartar and one of Soda, half a teacupful of White Sugar, sufficient Rye-flour to make a stiff batter. Bake in gem-pans.

BOYS & GIRLS' COLUMNS.

Laying in Stores.

Here is autumn with its ripeness, telling us that the season of growth is over, and that the rest of winter will soon follow. Winter brings its work and its pleasures; the Christmas holidays will soon be here, when girls, and

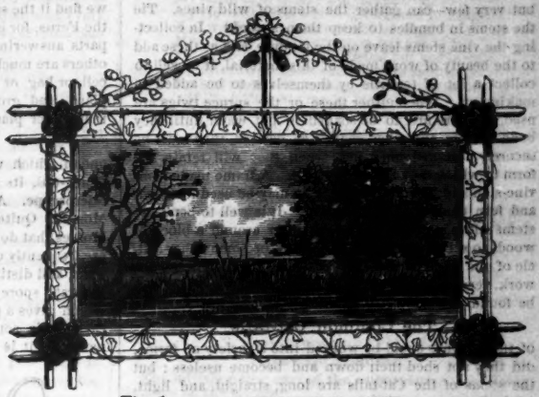


Fig. 1.—FRAME OF CAT-TAIL STEMS.

boys too, will be thinking of presents for the family and friends; then there will be birthdays, for which you will wish some little gift; besides these it is very likely that there may be some fair to which you would like to contribute something. In thinking about presents you will recollect that it is not its cost that makes a gift valuable, and that one worthy of a present would much prefer something you have made yourself to anything you could buy; and you call to mind the many nice little things you could make if you only had the materials to work with, and will regret that you had not thought of it some months ago and provided a stock of things in store. This with most of you will be, if not the last, almost the last month in which you can collect materials to work up hereafter, and we remind you to improve it.

What Shall we Collect?

will be asked by some. That depends in part upon what you would like to use the materials for, and in part upon

Fig. 2.—FRAME OF GRAPE STEMS.

what you can find. A little ingenuity will convert very common materials into really tasteful and useful forms. Very pretty things are made of spruce twigs; they make neat little picture frames, racks for pens, or even for tooth-brushes, and various other articles. The common White or Black Spruce will answer, but it is often easier to get twigs of the Norway Spruce, which is so often planted for ornament. By cutting a twig carefully here

and there, you can get all that you need without disfiguring the tree. The twigs should be laid away with a board or moderate weight on them to keep them flat, and when dry, the leaves will fall off or come off readily.... Even the

Stems or Canes of the Grape-Vine

may be used for various purposes. When the vines are pruned this fall, there will be much cut off that is too small for cuttings, but just what you can make use of. Those who have no grape-vines—and we trust they are but very few—can gather the stems of wild vines. Tie the stems in bundles to keep them straight. In collecting the vine stems leave on the tendrils, and as these add to the beauty of work made of this material, it is well to collect a lot of tendrils by themselves to be added in making up. When either these or the spruce twigs are used, they are first to be soaked in hot water until they bend readily, and when shaped as desired, they must be securely fastened until dry, when they will retain the form to which they have been bent. A frame made from vine-stems is given in figure 2; it may be used for a leaf and fern design, or for a picture. It is well to bend the stems after softening them in water around a block of wood, to serve as a mould, or a dish, or some other article of the right shape will answer. In fastening such work, very fine copper wire and pins of various sizes will be found useful.

The Common Cat-tails

of the marshes could be worked into a variety of forms, did they not shed their down and become useless: but the stems of the Cat-tails are long, straight, and light, while they have sufficient strength for some purposes. Figure 1, shows how these stems are used to build a frame; the places where they cross may be bound by fine copper-wire, and this is hidden by small cones, acorn-cups, or other objects. The space between the stems may be backed with some colored paper; and those who know how to make leather-work, can ornament it with leaves of leather. It will be better to use a thin board the whole size of the frame; mount the picture and border of colored paper on this, and build up the frame around it, using pins or brads to fasten the stems to the board. These are merely given as examples of the manner of working up common materials. A frame or bracket of wood may be made a handsome affair by covering it

With Lichens, or "Mosses,"

as they are often wrongly called—what they are, is told by the Doctor in this month's Microscope talk. These are found on tree trunks, old logs, old fences, on rocks, etc., and may be gathered at any season; it is best to collect them on a damp day, as they then are readily removed, and are not brittle as in a dry time. Spread them loosely until dry, and store until wanted for use. To cover a bracket or frame, first assort your lichens, placing each kind and shade of color by itself, as much taste may be shown in the manner of putting them on. Thick flour paste is used, a coat of it being put upon the wood and the lichen laid upon it.

Leaves, Ferns, Grasses, Etc.,

for making up into little pictures, especially autumn leaves, must be gathered soon, or it will be too late. Grasses to be used for this purpose, as well as the leaves, etc., should be pressed. Some large book, not valued, may be used for pressing, or what is better, as we never like to see books put to such uses—soft newspaper folded in several thicknesses, and the leaves, etc., placed between them and a weight placed on top. To keep the color, especially of autumn leaves, a plenty of paper must be used, which for a few days should be changed every day. Keep the leaves, grasses, etc., under pressure, to keep them in proper shape, until you use them.

The Young Microscopist's Club.

In telling you last month some of the points by which you can know a Fern from other plants, I said that the Ferns belonged to the Flowerless Plants, but I find that I did not say so much about these as I intended. In studying natural objects it is necessary to so arrange them as to bring those alike together. In birds the *waders* form one group, the *swimmers* another, the *birds of prey* still another, and so on. In insects the butterflies are put together, as are the beetles, the flies, etc. So in every branch of science the objects are classified. In plants we have two great series into which all plants are divided;

The Flowering and Flowerless Plants,

and whatever plant you find must belong in one or the other of these. These plants have no proper flowers, and they do not have seeds like the flowering plants. In all the plants that we are most familiar with, the flower is followed by seed, each one having within it a minute plant, or the beginning of one, ready formed, and when the seed is sown a plant will come up; this plant is just what was already in the seed, but increased in size. The little plant in the seed is called the *embryo*, but nothing like this is found in the flowerless plants; it is true that they produce something that answers the purpose of seeds—something which after a while will produce a plant; this, as described last month, is a

Minute Dust, Called Spores.

The part which a spore takes in producing a new plant is too difficult for you to understand until you know more about plants than young people are likely to have learned. So you must take it on trust until you get old enough to look into the matter. In the flowering plants some are much simpler in their structure than others, and we find it the same among those that are flowerless. In the Ferns, for example, there are root, a stem, leaves or parts answering to them, and distinct fruit-dots, while others are much simpler until we come to a mere little cell, or bag, or a simple thread that constitutes the whole plant, and grows and reproduces itself, which is all that larger plants do. Related to the Ferns are

The Horse-tails,

one of which was described in Feb'y last as the Field Horse-tail, its spores making a curious object for the Microscope. Another family of flowerless plants is the Mosses. Quite a number of things are commonly called Mosses that do not belong to the family—even sea-weeds are frequently called "Sea-Mosses." The Mosses have a stem, and distinct leaves, and produce their spores in a separate spore-case. In fig. 1 we have a common Moss which gives a general idea of these plants. The spore-case, *a*, is sometimes called the fruit; the botanist's name for it is *Sporangium*. Figure 2 shows the same

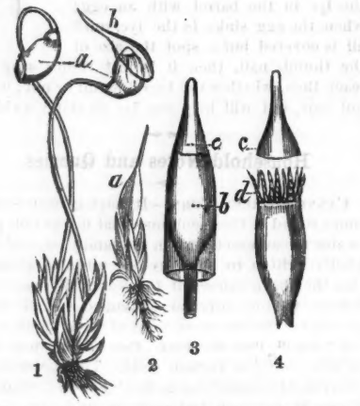


Fig. 1-4.—1. A COMMON MOSS.—2. THE SAME VERY YOUNG.—3. A SPORE-CASE WITH HOOD.—4. THE SAME WITH HOOD REMOVED, AND LID *c* LIFTED, SHOWING THE TEETH, *d*.

moss when young, before the stem has lengthened upwards and lifted up the spore-case, as in figure 1.

The Spore-Case or Sporangium

presents a great variety in form, size, and other points; hence it serves to classify the Mosses into genera. You will find these plants at all seasons of the year, and very pretty objects some of them are for your Microscope. Figure 3 gives the spore-case of another Moss, much magnified, that you may see the parts distinctly. The case is often with a sort of cap or hood, shown at *b*. This is sometimes very small, and being pushed off early, is not always found, and at others large and very noticeable; in describing Mosses this is called the *calyptra*. The case has a lid or cover (*operculum*) which finally drops off to let out the spores; this lid is seen through the hood at *c* in figure 3, while in figure 4 the hood is removed, and the lid *c* lifted off; in most Mosses the mouth of the case bears a sort of fringe, *d*, which consists of a single row of teeth, or in some cases there is another row inside of the first, forming a double fringe; at first these teeth are bent over towards the center to form a sort of inner covering to the mouth of the spore-case, but they are much affected by moisture, and are often found erect as at *d*. (Botanists call this fringe the *peristome*, which means, around the mouth.) One curious thing about it is, that these teeth are always some multiple of 4, and vary from that number up to 64; they are broad and strong, as in the engraving, or are merely slender hairs which are sometimes twisted together. The teeth are often handsomely marked, and as they are of pleasing colors they make pretty objects for the Microscope.—

Fig. 5.—A FLAT LICHEN, *Stricta*.

Mosses Vary Greatly in Size.

One of the largest of ours, found floating in northern

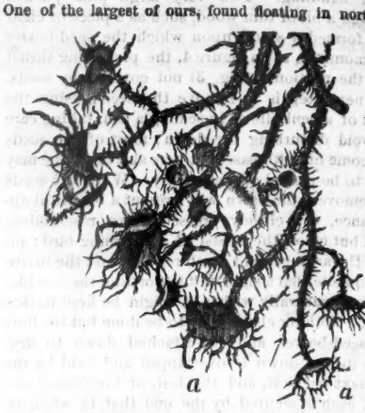


Fig. 6.—A BRANCHING LICHEN, "TREE-HAIR."

streams, is a foot or so long, with large leaves for a Moss; while others are less than a fourth of an inch in hight. The most useful of the Mosses is the common Peat Moss, or *Sphagnum*. This is much used for packing plants and other garden purposes. Of course there are many other things about Mosses that a student of them would wish to know, but what has been said, and the engravings, will, I think, allow you to distinguish a Moss from any other plant... I often hear of mossy fruit trees, moss on old fences, and of moss to cover brackets, and to make other fancy articles, and when I see them I find that

They are Not Mosses at All,

but plants of a very different family, the *Lichens*. There is no other name for these plants as a family, and that is perhaps why they are so often called Mosses. When you speak the name recollect that the *ch* is hard, and that it is to be pronounced as if spelled *li-ken*. These plants have a great variety of form; some are thin, flat, crumpled plates or sheets; others long and slender, like a small cord; others are erect and vase-shaped, or much branched. They grow on the ground, on stones, boards, trees, etc., and have even been known upon glass in the windows of old buildings. The flat Lichens have sunken spots in the surface, as at *a*, *a*, fig. 5. These are "shields," or fruit-dots, and have imbedded in their substance little sacs containing the spores. The most useful of these flat kinds is the Iceland Moss, used in far northern countries as food. In the deep northern woods the "Tree-hair" (*Usnea*) figure 6, is found hanging from the trees, some of it 4 or 5 feet long; this bears its shields, *a*, *a*, at the ends of its branches. Some beautiful Lichens related to this are found on the Pacific Coast. The so-called "Long Moss" that hangs from the trees in a similar manner in the Southern States, is not a proper *Moss*, but a flowering plant. A common Northern Lichen is the "Reindeer-moss," which grows upon the ground and is the chief food of the reindeer during winter. One of the kinds you will be likely to notice is sometimes called "Coral Moss," and has the form shown in fig. 7; the knobs on the edge of the vase are the fruit shields which

Fig. 7.—CORAL LICHEN.

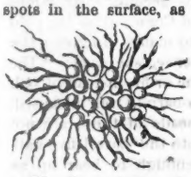


Fig. 8.—MOULD.

Are of a Brilliant Scarlet Color

and very ornamental. The Lichens present various colors, and some, not showy in themselves, may be so treated as to produce a fine dye..." T. G.," Bergen Co., N. J., upon taking a pair of shoes from a closet, found light colored spots on them; some of these spots were as large as the end of a pencil, and others an inch or more across. He examined the spots with his Microscope, and sends a sketch, figure 8, of what he saw, and of course wishes to know what it is. His shoes were simply mouldy, and the spots were the common mould, the same

Fig. 9.—MOULD.

that is found upon stale bread and many other articles. This is one of the objects just beyond the power of our Microscope to show satisfactorily. Some of this mould, carefully scraped off and examined with a strong compound Microscope, would appear as in figure 9. The threads at the bottom are the proper plant, and the little bead like clusters are the spore-cases.... Here is a question that I find it difficult to answer—"G. C. W.," Minn., asks "can an insect

Feel Pain after its Head is Off?"

As insects have no means of expressing their opinion on this subject, we should give them the benefit of the doubt, especially as they have no distinct brain, but a number of brains, or nerve-centers in various parts of the body. It is best to kill them first. All but those with scaly wings—butterflies and moths—are easily killed by dropping them into alcohol; the others may be killed by placing a few drops of chloroform or benzine upon them.

A Crazy Cushion is now very popular among young people. The idea is to combine the work of various persons in one piece of embroidery—to make a sort of worsted album as it were, (not the only kind of album, by the way, that is a *crewel* affair.) A square of canvas is required: this is then divided in the manner shown in

the engraving—an inner square, and an outer one, with the space, or border, between the two squares, laid off in such divisions as the diagram shows, these lines being worked in black worsted. The owner invites her or his friends to work some design, either in one of the divisions of the border, or in the central square, each one choosing a device without reference to any of the others; when a figure is worked in the central square it is not with the regularity shown in the sketch. The more unlike and irregular the different designs, the truer to its name—the more "crazy"—the cushion will be. When the figures are all worked, the filling in is done with any color that may be desired, and the affair is made up as a sofa cushion or pillow. Worsted work is usually regarded as belonging to girls, but when we said above "her or his friends" we had in mind the fact that we have known young men to have crazy cushions, though so far as we have seen, the designs worked upon them is done by the girls. The idea is a rather pleasant one, and when finished, the work is useful as well as pleasing.

Aunt Sue's Chats.

GUM UPON STAMPS.—MINNIE.—The "gum" upon the back of Postage Stamps is not Gum Arabic, but a substance called *Dextrine*, which is prepared from starch—usually from potato starch. If you mix starch with cold water, it will soon all settle, as it does not dissolve at all in cold water. If starch is carefully heated to 450°, and kept at that temperature for half an hour, it will be changed to dextrine, which differs from starch in several particulars, especially in dissolving in cold water. Dextrine prepared in this way is slightly brownish; if the starch is wet with a very weak nitric acid, and dried, it is changed to dextrine at a much lower temperature than when prepared by heat alone, and is as white as the starch from which it was made.

PRINTING POSTAGE STAMPS.—These are printed in a very different manner from ordinary printing. The stamp is engraved on a flat plate of copper or steel. If you examine a stamp with your Microscope or other magnifier, you will see that the engraving is all in lines. These lines are cut in the plate of metal, 200 stamps being engraved on a single plate. The plate is rubbed over with ink, and then carefully wiped off. The ink stays in the lines cut in the plate, while all the rest is wiped off, and when a piece of paper is laid over the plate, and both passed through a strong press, the paper takes up the ink from these lines. After the colors on the sheets are dried, they are sent into another room to be gummed. After having been again dried they are put between sheets of pasteboard and pressed in hydraulic presses capable of applying a weight of many tons. A girl then cuts each sheet of two hundred in half, with a pair of shears. They are then perforated with the rows of holes to allow them to be torn apart easily. If a single stamp is mutilated, the whole sheet of one hundred is burned. About five hundred thousand are burned every week from this cause. During the process of manufacturing, the sheets are counted eleven times.

"THE CASTLE OF CHILLON."—EVANGELINE.—This castle is situated near the eastern extremity of the lake of Geneva, in Switzerland. It is on a rock surrounded by deep water, and connected with the mainland by a wooden bridge. It is said to have been built in 1120. For many years it was a State Prison. Byron's "Prisoner of Chillon" has rendered it famous. Bonivard, prior of St. Victor, was confined here from 1530 to 1536. It is now used as an arsenal.

HATTIE E. M.—In a "magic square" *every* column, horizontal, perpendicular, and diagonal, must foot up to the same amount.

P. R. W. will find directions for a "card receiver" (to hang on the wall) in the March Number of the *American Agriculturist*, 1877, page 107.

"JOE LIVINGSTON" sends the following problem. It is not difficult, but as some of you may like to practice your algebra upon it I give it place. "Twelve persons buy a dinner for $12. The men pay $2 each for their dinner, the women pay 50c. each for their dinner, the children pay 25c. each for their dinner. *Query:* How many men, how many women, and how many children were there?"

Below, we give one a little more complicated:

Two friends set out one day to walk,
A had some miles the start;
A took five steps while B took four,
A was so spry and smart.
But A's spry steps were also short,
Three equalled two of B's;
So when B travelled thirty miles,
He'd gained the space with ease.
This is the problem now to solve,
By arithmetic art;
When A and B set out to walk,
How far were they apart.

Thanks for puzzles, letters, etc., to H. E. M., M. Arrowsmith, C. B. R. (the second, only, who answers S. W. W.'s numerical enigma), T. A. C., Amy F., Evangeline, S. T. T., John J. C., and E. W. E.

Aunt Sue's Puzzle-Box.

NUMERICAL ENIGMA.

I am composed of 41 letters:
My 8, 29, 2, 17, 12, 13, 36, 22, is a number.
My 24, 35, 14, 37, 30, 11, 26, is severe.
My 13, 4, 28, 30, means "before."
My 12, 24, 28, 39, 31, is a sylvan god.
My 18, 30, 13, 32, 10, 21, is a small animal.
My 23, 27, 34, 33, is an article of clothing.
My 9, 6, 41, 4, 22, is often used in hunting.
My 23, 19, 40, 8, is what a certain bird does.
My 38, 25, 26, 4, is very useful in cooking.
My 36, 3, 28, is a kind of fruit.
My 5, 16, 15, is liked by most children.
My 23, 20, 8, is a kind of dwelling.
My 1, 7, 37, is a mark.
My whole is a well-known proverb.

WALTER SIMPERS.

ANAGRAMMATICAL SQUARE WORD.

From the sentence "Sweet nuns soon won," make four words of four letters each, that may be so arranged as to form a square word:

Substitutions.

(To fill the second blank, change one letter of the word that fills the first blank—*e. g.*, I saw a —— fly from the —— of the hill.—*Crow, brow.*)

1. —— asked the —— to bring him a glass of water.
2. She spilled some —— on to her —— dress.
3. He saw a —— key lying in the ——.
4. I am going to —— a row on the ——.
5. Is it —— that that is a maple ——?
6. The poor —— floundered into the —— and could not get out.

CONCEALED NAMES.

1. Madam, you are losing your veil.
2. Do you remember that event?
3. Yes, indeed, it was well ended.
4. That man had a noble presence.
5. Aye, he made liars tremble.
6. Every word he spoke, told!
7. Yes, there is no man like him.
8. Pshaw! I have met them many a time.
9. Oh! do raise that window.
10. In France, silks may be bought cheap.

PI.

Tashy soulertonis moldes desep lewl.

CONCEALED MAGAZINES AND PAPERS.

1. We must look to posterity for redress.
2. Mamma has sold her Alderney cow.
3. Time slips away very quickly when one is happy.
4. Be careful never to oppress the poor.
5. The cat is under the table.
6. This is a char, perhaps you will like it. E. P. B.

CROSS-WORD.

My first is in Kingdom but not in State,
My next is in mousetrap but not in bait,
My third is in mourning but not in gloom,
My fourth is in sepulchre but not in tomb,
My fifth is in charcoal but not in wood,
My sixth is in handsome but not in good,
My seventh is in ribbon but not in tape,
My eighth is in satin but not in crape,
My ninth is in grouse but not in teal,
My tenth is in shuffle but not in deal,
My eleventh is in sovereign but not in king,
My twelfth is in jerk but not in fling,
My thirteenth is in dungeon but not in jail,
My fourteenth is in whirlwind but not in gale,
My fifteenth is in science but not in art,
My sixteenth is in carriage but not in cart:
If the letters are put in proper place
A Shakespearian character you may trace.

RHOMBOID PUZZLE.

Across.

1. Sometimes a confirmation. Sometimes a prayer. ····
2. Level. ·····
3. Certain animals. ·····
4. To close. ·····

Downwards.

1. This makes men mean.
2. A pronoun.
3. A woman's name.
4. The life of a newspaper.
5. A trap.
6. An adverb.
7. This makes ale a light color.

SCIENTIFIC ACROSTIC.

The initials name part of the atmosphere. The finals include all the metals.

1. A salt which is spontaneously generated in the earth.
2. The characteristic designation of certain microscopic bodies.
3. A crystalline mineral occurring usually in prisms and valued for its polarizing qualities.
4. A metal whose salts are rose-colored.
5. Is the natural state of most metals.
6. Was formerly used for finding the altitude of the sun.
7. A fungoid vegetable production extensively used in medicine.
8. Certain forms of ammonia are thus called. J. A. B.

ABBREVIATIONS.

1. Behead and curtail a color and leave a resinous substance.
2. Behead and curtail a small animal and leave a number.
3. Behead and curtail a basket and leave a small animal.
4. Behead and curtail a plaintive poem and leave part of the body.
5. Behead and curtail a small fruit and leave a quick, smart blow. ISOLA.

ANAGRAMS.

1. Try a thin plum. 2. Find no gruel. 3. Mrs. Nip on time. 4. Entice gallery. 5. So pour music. 6. O see sober rig. 7. In sad cool set. 8. O wise mare. 9. Eject a Saul. 10. Coined beside.

ANSWERS TO PUZZLES IN THE AUGUST NUMBER.

SUNDAY ACROSTIC.

Israel—Red Sea.

I—esacha —R
S—ton —E
R—amoth Gilea—D
A—hasuerus —S
E—agi —E
L—aodice —A

SQUARE WORD.

O P A L
P I N E
A N N A
L E A D

CHARADE.—Candidates.

HIDDEN TREES.—1. Fir. 2. Pine. 3. Oak. 4. Elm. 5. Cedar. 6. Maple. 7. Ash. 8. Beech.

SUBTRACTION AND ADDITION.—1. Account. 2. Counter. 3. Tercel. 4. Cellar. 5. Largo. 6. Go-by. 7. By-wash. 8. Wash-bowl. 9. Bowlder. 10. Dermal.

EASY NUMERICAL ENIGMA.—Robert E. Lee.

SYNCOPATIONS.—1. Hole—hoe. 2. Fate—fat. 3. Tale—ale. 4. Gore—ore. 5. Steal—teal. 6. Break—beak. 7. Wren—wen. 8. Grin—gin.

NUMERICAL ENIGMA.—

"'Tis education forms the common mind,
Just as the twig is bent the tree's inclined."

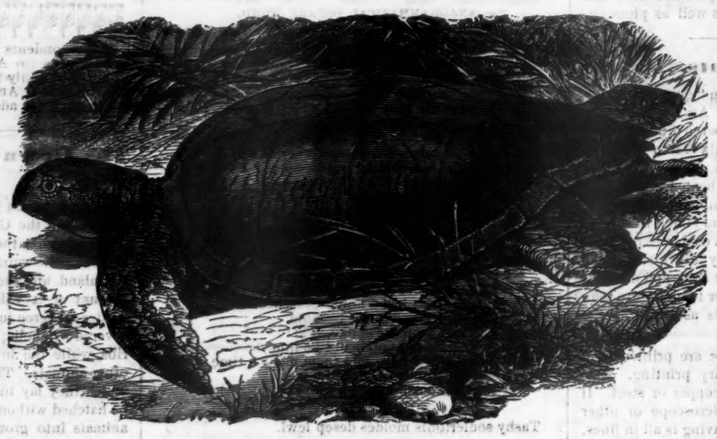
Correspondents will save time, if they will address their letters (to Aunt Sue) to Rowayton, Fairfield Co., Conn., from July to December of this year. But please remember that AUNT SUE is *not Orange Judd Co.*; the latter must be addressed at 245 Broadway, N. Y. City.

The Green Turtle and How It is Caught.

Master Charles S. H., of Neb., and others, who have heard about the Green Turtle, would like to know how it differs from the turtles they have caught, and other matters concerning it. As it is rarely to be seen very far inland, and then only in large cities, no doubt some account of it will interest many. The tortoises and turtles all agree in having the soft parts of their bodies covered by shells; the upper shell is really the flattened ribs, while the lower corresponds to the breast bone in other animals. They reproduce their young from eggs, which they lay in holes in the ground, leaving them to be hatched without their care. Naturalists divide these animals into groups or families, according to certain differences which fit them for various modes of life. One of these families, called *Chelonians* (from the Greek word for turtle), includes those that live in the sea; as these rarely leave the water except to lay their eggs, they are quite different in several respects from those that live on land, or in the rivers. Their feet, or flippers, and

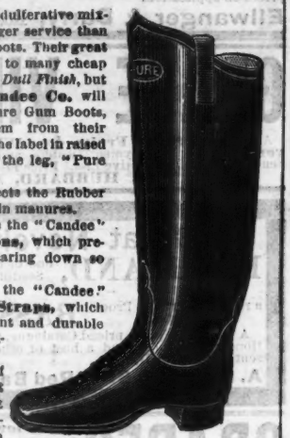
CATCHING TURTLES ON THE COAST OF FLORIDA.

other parts, are well adapted to the "sea-faring life" they lead, and though they move rapidly in the water, they are exceedingly clumsy, indeed almost helpless on land. There are a number of these Sea Turtles besides the one called Green, some of them growing to an enormous size; some live on other animals, while others, like the Green Turtle, feed solely upon plants. The smaller engraving will give you the appearance of this turtle, which varies in size from a few pounds in weight up to 300 to 500 lbs. or more. The under part of this turtle is white, while the upper part is usually a light brown; the name "Green" is said to be from the color of the fat, rather than from that of the animal itself. These turtles are generally to be found in the markets of sea-board cities, where they are kept in tanks of salt water, and fed upon cabbage-leaves and other vegetables. The Green Turtle belongs to the waters of the warmer parts of this Continent; it is especially abundant in the West Indies, and on the coast of Florida; now and then one has been taken in the waters of New York Bay, but such have only strayed or drifted from home. The flesh of this turtle is by many much esteemed as food, but it is chiefly used to make Green Turtle Soup. The turtles are generally caught when they go on shore to lay their eggs, though they are sometimes taken at sea; we have seen the great fellows fast asleep on the surface, and when waked up by the approach of the steamer, get out of the way in a lively manner; when sleeping thus, they are easily caught in a net. The large engraving, given above, shows how the turtle-hunters catch them, it being a scene taken on the coast of Florida. The turtles leave the water on moonlight nights, and after carefully looking to see that there is no danger, slowly crawl about to find a proper place; they then, by working with their hind flippers, make a hole in the sand about two feet across, and each deposits about 200 eggs. Their eggs, like those of our land-tortoises, have a soft parchment-like shell, with a little dent at one side; they are about the same weight as a hen's egg, and are highly esteemed as food. Though the turtle neglects her eggs, she is very careful in covering them, patting the sand down upon them with her flippers and then bringing the weight of her body down over the spot. Though very shy when they first leave the water, when they get fairly at work at their nests they do not care for the presence of strangers. Then is the hunters' time; they can go directly up to the turtles without disturbing them, turn them upon their backs, and they are caught. When thrown upon its back this turtle is unable to turn over; the poor creature is quite helpless, and must remain until it is carried off. It requires some skill to turn over a large turtle, as the animal makes a great struggle, and if one is a new hand at it, he is very likely to be bruised by blows from the powerful flippers, or be blinded by the showers of sand that are thrown up in the struggle. The turtle-hunters have pens placed where the tide will flow into them, where they keep great numbers until they have a chance to send them to market. A great many are sent to Europe. The turtle that furnishes the beautiful shell of which combs and ornamental articles are made, is found in the Pacific and Indian Oceans. The great Loggerhead Turtle is sometimes found as far north as Virginia; when full-grown it weighs 1,500 to 1,600 lbs., but is of little use except for the oil it yields.



THE GREEN TURTLE.

"CANDEE" PURE GUM RUBBER BOOTS.



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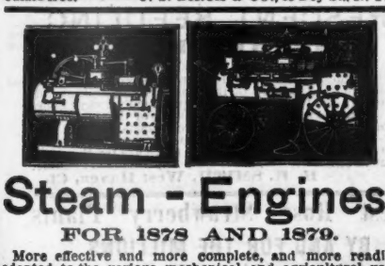

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REV. W. H. H. MURRAY,
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2,000,000 GENUINE BERRY PLANTS; Packing free. Strawberries, Wilson Albany, Chas. Downing, Monarch of West, and other sorts, $2 per 1,000; Great American, Crescent Seedling, $10 per 1,000; 35 other varieties, new and old, prices too low to print here. Brandywine Raspberry, $8 per 1,000; 15 other sorts, new and old. Wilson Early Blackberry, $10 per 1,000; 7 other sorts. Asparagus Roots, $2.50 per 1,000; Currants, Grapes, Peach Trees, etc., etc., bottom prices. Special rates on $5 and $10 orders. See new Catalogue, now ready, free.

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Strawberry Plants	Either kind	Raspberry Plants
100 Crescent Seedling	postpaid	50 Brandywine Red
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100 Boyden's Thirty	& ANTHONY	50 Mammoth Cluster
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Blackberry Plants	Descriptive	15 Concord
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Is by far the best time to set out RASPBERRY, CURRANT, GOOSEBERRY, and BLACKBERRY PLANTS.
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Has a very fine and varied stock, true to name.
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THE ALEXIS (Russian Model).
It is the most extraordinary bargain ever offered in the Gun line. Full nickel silver plate, 7 shot, self-revolving cylinder; wgt., 18 oz., using extra long Rifle Cartridges, and will kill at 100 yards.

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We know that this Revolver is all that we claim for it, and is the biggest bargain we will ever offer. Those who bought our Rob Roy last Spring will have no hesitation in purchasing the Alexis, for big a bargain as the Rob Roy was, this Revolver is far ahead of it. The parts of this Revolver are interchangeable and readily duplicated. Address, Bay State Arms Co., dealers in Fire-Arms, Sporting and Military, 98 Water Street, Boston, Mass. Parties in vicinity of New York can see this Revolver at Editorial rooms of the American Farmer, 31 Astor House. Preserve this advertisement.

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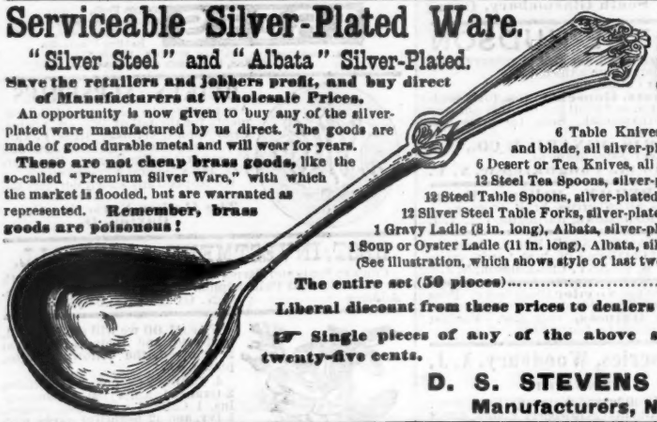

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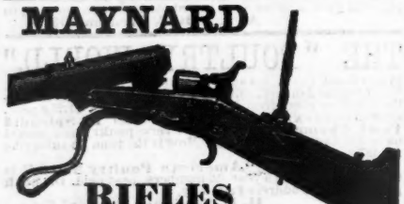

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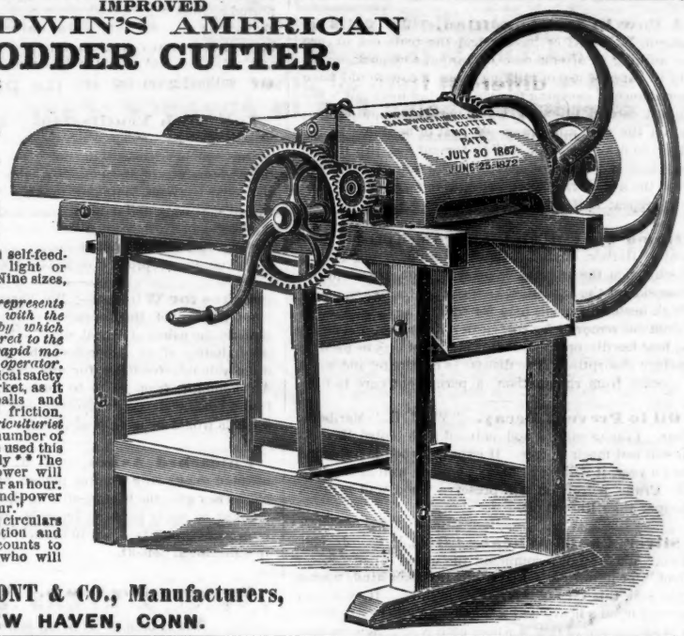
The Simplest and Best in the world. Has only three feed gears. Prices greatly reduced.



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For Fowls and Swine.

Made from Fresh Meat, Fresh Bones, and parched and carbonized grains, all reduced to a fine, sweet, highly nutritious meal. Fowls and Swine eat it greedily, and it is so concentrated, that four to eight quarts is a sufficient quantity to mix with a bushel of common meal or other food, and the mixture is fed as you would ordinarily feed common meal. **It will make your Hens lay and Pigs grow,** the meat and parched grains being very stimulating and healthful, while the lime of the bone is essential for forming the shell of the egg or new bone in the growing pigs. It has been extensively used for five years. Trial Bags, containing 30 lbs., $1. 100 lbs., $3. Special Price per ton.—Also for sale **Ground Oyster Shells, Chicken Bone, Cattle Bone,** Ground Scraps, Wheat Screenings, and a full line of Special Feeds for Poultry, Swine, and Cattle. ☞ Send for Price Lists and Circulars, giving full particulars, *mailed free.*

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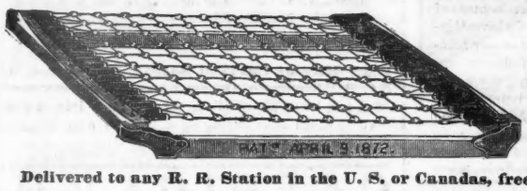

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containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Continued from p. 369.

In justice to the majority of our subscribers, who have been readers for many years, articles and illustrations are seldom repeated, as those who desire information on a particular subject can cheaply obtain one or more of the back numbers containing what is wanted.

Back numbers of the "American Agriculturist," containing articles referred to in the "Basket" or elsewhere, can always be supplied and sent post-paid for 15 cts. each, or $1.50 per volume.

"Mexican Tomato."—"M.," Ag'l College, Texas, forwards the flowers and upper leaves only of a plant from seeds sent by the Ag'l Dept. at Washington, as "Mexican Tomato." It is evidently, as he suggests, not a proper Tomato, but some species of *Physalis*—which one we can not say without the fruit. The Mexicans use, under the name of *Tomatilla* (little Tomato), the fruit of several kinds of *Physalis*, and we cultivate one as the "Strawberry Tomato," or "Winter Cherry." Please send the fruit when ripe.

Spiræa Palmata Elegans.—Last year the English and French journals were enthusiastically praising a plant with the above name, concerning which was made the remarkable statement that it was a hybrid between *Spiræa palmata* and *Astilbe Japonica*. We doubted the possibility of such a hybrid, and the colored plates indicated no greater difference from *S. palmata* than often occurs in sports. Having arranged to get this remarkable production—remarkable in the claims made for it—we were not a little surprised to read in "The Garden" that "It is simply good for nothing, and the least ornamental of all Spiræas."—Why can't plants grow like the highly-colored pictures, or the still more highly-colored descriptions which those who have them for sale give us in advance?

How Lime is Applied.—"C. S.," Jackson Co., Ohio. Lime is usually applied by spreading it dry slacked upon the surface—40 or 50 bushels per acre—and mixing it with the soil by harrowing. It is best spread from a wagon by means of a long handled shovel.

Treatment of a Curb.—"A. J. S.," Jefferson Co., Ohio.—A curb is a swelling just below the hock on the back of the leg, and is caused by a sprain of the posterior ligament of the hock. At first more or less lameness results from it. After the tenderness is past, the lameness disappears, but the swelling remains. After a time the soft swelling develops into a hard callus, which is difficult of removal. To treat the soft swelling, take 1 dram of powdered iodide of potassium and dissolve in 7 drams of glycerine, adding a little water if necessary to make it dissolve. Rub this upon the curbs for 10 minutes every day until the swellings disappear or become hard, when blistering should be resorted to under the advice of a veterinary surgeon. "Dadd's Modern Horse Doctor" is a useful book, and every owner of a horse should have a copy of this, or of Prof. James Law's "Veterinary Adviser."

Apple Pomace.—"A. E. E.," Worcester, Mass. By composting with lime (5 bushels to the cord) apple pomace will be decomposed and made into good manure in three to six months' time. The lime neutralizes the acid and aids decomposition. The material contains considerable potash and phosphoric acid in the seeds, as well as some nitrogen.

Five Hundred Dollars is too small a capital on which to begin milk farming near New York. So we would advise "P. B.," who "would have to rent a farm, buy a horse and wagon, and feed, the first year," not to try it, as the experiment must end in failure and loss. Many people suppose that farming can be carried on profitably without either capital or experience. While this may be possible to a certain extent on new lands, which cost almost nothing, the idea, as a general thing, is wrong, and has caused much loss and many disappointed hopes. One of the chief obstacles to success with the majority of farmers is the lack of working capital. In England, every farmer must have from $25 to $50 per acre, while here his working capital is too often represented by a debt in the form of a large mortgage

Ground Feed for Cows.—"T. N. S." In practice, we find a good ground feed for cows to be the following: 1 bushel each of corn and oats, and 100 lbs. of wheat middlings ground together. Although it costs something to grind the middlings with the grain, yet the better quality of the feed and its finer condition, when thus prepared, repay the expense. If otherwise considered, the middlings may be mixed with the meal, by shovelling them together on the barn-floor.

Some Poultry Matters.—"A. G. O. M." The common mixed or mongrel race of fowls known as barnyard or dunghill fowls, are susceptible of improvement either by careful breeding and high feeding, or by crossing with pure bred cocks. An average half-bred B. Leg horn is better than an average common hen; the cross of pure Leghorn blood *is* an improvement; the Light Brahma cross gives size of body as well as prolificness of eggs. Light Brahmas are probably the heaviest birds, cocks of 16 lbs., and hens of 12 lbs. being not uncommon. The Dark Brahmas are a fine race, but for some good reasons are not so popular as the Light Brahmas. One good reason is, they are not so hardy or productive.

Salt in a Compost.—Let "C. G. C." try it, and he will learn a good lesson in chemistry. What do we use salt on fresh meat for? Simply to prevent decomposition, and it will have the same effect if put into a compost, which is just the opposite to what is desired. If a good compost is wanted, do not put salt into it, "for the sake of saving the ammonia," as, in fact, it will prevent it from being formed; but spread an inch or so of fresh loam over the heap, which will not prevent decomposition, yet will catch and save the escaping ammonia.

"The National Agricultural Congress" met at New Haven, Conn., on Aug. 27th last, for a three days' session. Whether the death of the President, the Hon. W. C. Flagg, had a disheartening effect, or the meeting was not properly advertised, the attendance was altogether too small to be called "national," or even a "congress," though the few that were present were from widely separated parts of the country. The Secretary, always the most important officer on such occasions, failed to appear, or to say that he could not come. The President was Dr. T. P. Janes, Commissioner of Agriculture of Georgia, and Dr. E. L. Sturtevant served as Secretary. The meeting brought together gentlemen from widely separated points, and, as often happens in such cases, its most useful work was done outside of the meetings in the informal conversations and discussions among the members. We could not see that in the papers presented, or the discussions which followed, the proceedings rose above the level of the average farmers' club. There was the same putting of irrelevant questions, and while the private axe was not conspicuous, a glimpse could be now and then had of the end of the handle. The local committee, while they deserve much credit for making matters pleasant to those who were there, might, it seems to us, have secured a larger attendance by the farmers of New England, and especially of Connecticut. If those present did not increase their knowledge of agricultural affairs, they saw one of the most beautiful of New England cities in its best dress.

Apples from North Carolina.—S. T. Kelsey, Highlands, Macon Co., N. C., sent us a basket of "Carolina Red June" apples, picked from his orchard, Aug. 29th, at which date they had been highly colored for four weeks. These specimens were of the darkest, most intense red, and being of much finer flavor than we have ever known in those raised at the North, gave us an idea of what this excellent early apple can be, when grown in perfection among the mountains of North Carolina.

A Sizable Plum.—Messrs. G. H. and J. W. Hall, So. Glastonbury, Conn., sent us a plum "of the average size," borne by the tree. This plum averages 3 by 2¼ inches—not in circumference, but in diameter. The Messrs. H. bought the tree several years ago as a "Pond's Seedling," but the fruit is very different from that, and, as it has not been recognized as a known variety by any of our experts, they propose to call it the "Glastonbury." We suggested to Messrs. H. that this might be a possible instance of bud variation; a single bud upon a Pond's Seedling having sported, a view they are disposed to adopt. It is no more strange that a single bud upon a tree should sport in the way of bearing enormous fruit, than it is that a peach bud should sport to produce a nectarine, or the reverse, both having occurred.

Salt of no Value (?) to Animals.—"C. B.," of Hightstown, N. J., writes that his experience teaches that cattle and horses do quite as well without salt as with it. The experience of thousands of others furnishes evidence to the contrary. And even if it were of no special value, it would seem to be a liberal policy to allow animals a taste of salt, now and then, as they relish it so much, and it costs so little. That the desire for salt is not acquired by domestication is shown by the fact that wild animals frequent "salt-licks" in great numbers, and make long journeys to reach them, indicating that it is a necessity; and it is doubtless a preventive of disease and promotive of digestion.

Salt on Land.—"C. B. M.," Madison, N. J. It is unnecessary to apply salt as plant-food, enough being present in the land, generally, to supply all the demands of the plant. The chief action of salt is to render available the plant-food already in the soil, which was before inaccessible, and it may be beneficial on a soil rich in such constituents, as, for example, a strong clay loam. On the poorer class of soils it may, in the end, be positively detrimental.

A Cow in Bad Condition.—"J. F. G.," Binghamton, N. Y. After having had the teats cut to ease the milking, or after a case of garget, cow-pock, or injury by careless use of milking tubes, a cow would have poor chance of escaping trouble with her next calf. We suggest careful watching when her time approaches; and on the first appearance of heat or hardness in the udder, to draw the milk, and to foment and rub it with a mixture of 7 parts of glycerine and one of iodine, to avoid the use of rich food, and to give an ounce of saltpetre, repeated, if necessary, to reduce fever.

Blood Spavin and Thoroughpin.—"R.," Benton Harbor, Mich. A thoroughpin is a bog spavin which, when the swelling is pressed upon, passes to the other side of the leg. Rest is necessary for a cure, which a high-heeled shoe will help forward. The inflammation should be removed by cold water dressings, and when the heat has disappeared, iodine ointment may be used, to produce absorption. The disease is obstinate, and when it occurs from rheumatism, a permanent cure is rare.

Oil to Prevent Decay.—"W. H. H.," Marlboro, Mass. Pine or other wood painted with boiled linseed-oil will last much longer. If exposed wood is well oiled once a year, it will resist decay about as well as if painted. Crude petroleum will preserve wood, and is much cheaper than linseed oil.

Silver Chaff Wheat.—"G. E.," St. Joseph, Mich. We can not recommend the wheat called "Silver Chaff," for light soils. In a trial with other kinds upon a light soil, this variety was worth nothing. How it may succeed upon a heavy soil is a question for investigation. It is safe never to risk a whole crop with a new variety, however well it may be spoken of elsewhere; the safe way is to sow a small quantity for trial at first. Wheat will not mix in the field.

Niagara Falls—Immense Water Power.—Dr. Siemens says 150,000,000 *tons* of water descend 150 feet every hour, which represent an aggregate of 16,800,000 horse-power. He calculates that 4 lbs. of coal burned per hour, in producing steam, gives a power equal to that of a horse working an hour; that to pump back the water falling over Niagara in a year, would require 266,000,000 *tons* of coal, which is more than all the coal used for steam purposes in the world.—As we figure it, then, the water-power of Niagara Falls, if all used, would be about the same as that of 34,000,000 horses, each working constantly for 12 hours a day. As a barrel of water weighs about 263 lbs., the fall of 150 million tons per hour, is equivalent to over 21 million barrels every minute, or 355,000 barrels of water every second!

Turner and Ross' Guns.—An advertisement of this firm appeared last year, after considerable investigation on our part. But because three or four of our readers complained of disappointment, we followed our usual custom, and omitted the advertisement, at considerable pecuniary loss, simply to be sure of being on the right side. The complaints received were looked into, and we believe were all made satisfactory. Messrs. T. & R. assure us that they themselves were deceived in a few of the thousands of guns sold by them, without knowing it at the time, and that they have been, and are anxious to do justly, and give entire satisfaction to every customer. If any others of our readers were disappointed, let them address Messrs. Turner & Ross, at Boston, and we shall be much mistaken if their complaints are not rectified.

Value of Salt-hay.—"L. D. B.," Palisades, N. Y. The feeding value of salt hay was given in an article by Professor Atwater, in the *American Agriculturist* for January, 1876, together with a table of values of many kinds of fodder, and a list of rations of these with various grains, by which comparatively poor fodder might be made equal to the best of hay. These tables are valuable, and should be kept for study and reference.

Save the Eyes—Reading and Writing.—Never read or write with the light shining into the eyes. It contracts the pupil and strains the eyes by the effort to gather rays of light enough from the printed page to make it legible. *Always* have the light from the window or a lamp, *come over the shoulder* upon the reading matter, so that the eye itself can not see the direct light. This will greatly aid the sight and save the eyes. *Never lean forward* in reading or writing; it compresses the chest and lungs and injures the health. Let the shoulders be thrown back, and have the chest or breast stand well out and free. These simple rules followed, will not only aid the sight, but save one's health and vigor many years, and enable him to read and write much longer at a time without weariness. We always write our letters, as well as all copy for the *American Agriculturist*, upon a tablet held in front as nearly perpendicular as possible and have the ink flow from the pen; while the head is supported against a high-back chair, and the elbows by the chair-arms, so that the mind has no care of their support, but is left free to think. In this position, we can read and write six, and even ten hours or more when necessary, without great fatigue.

Too Much Ventilation.—"E. H.," Lebanon, Del. It is very easy to ventilate a cool cellar too much in the summer time. The warm air which enters, deposits moisture on the cold floor and walls as dew, and the cellar becomes damp and mouldy. It should be ventilated sparingly, and if damp, may be dried by putting in it a bushel of fresh burned lime in a box. This will absorb the moisture and make the air dry. When the lime is slaked down, spread it on the field and use a fresh lot.

Ashes for Wheat.—"Boy Farmer." Wood ashes contain more of the essential elements of plant-food than do the ashes of wheat straw, a large portion of the latter being silica; therefore the wood ashes are a more valuable fertilizer for any crop, wheat included. Any amount, from 10 to 50 bushels per acre, will be found beneficial; on an average soil, probably about 25 bushels would be most profitable for wheat.

Unleached Ashes.—"J. H. K." These, being adapted to any crop needing potash, are useful to nearly all. They give the best results on light, dry soils. The amount to apply per acre depends on the soil and the crop; any quantity, from 10 bushels upward, will result in substantial benefit.

Feather-eating Fowls.—"D. W. S.," Scranton, Pa. The habit of pulling and eating feathers is common among fowls confined. It is impossible to cure the fault when once acquired, and it is best to kill the fowls for table use at first sight, as they quickly teach others to do the same. The cause is doubtless a need or appetite for something contained in the feathers. A mixture of dried flesh and bone, specially prepared for poultry, with a small quantity of sulphur, will act as a preventive. Bits of fresh lean meat, or scraps, or finely powdered fresh bones, will answer. Our fowls, which are regularly supplied with the "Imperial Egg Food," show no such depravity, though very closely confined at this season.

Thatching Roofs.—"N. C. M.," and others. For full descriptions of thatching roofs with straw see *American Agriculturist* for July 1874, and May 1868.

The Angora Goat and its Uses.—"G. A.," Fort Davis, Texas. An article fully descriptive of the Angora Goat was given in the *American Agriculturist* of October, 1876. The market for the wool (called mohair), is quite restricted; one mill that we know of, is in Jamestown, N. Y. There is nothing in the goat or the fleece to make it preferable to sheep, excepting under circumstances in which sheep can not be kept profitably.

Eggs May be Carried Safely, we would say to "T. G. R.," Benton Co., Oregon, a long distance by water, as there is little jar or disturbance. Eggs have been known to hatch after having been brought from Europe to this country. The jar and constant vibration of railroad carriage is injurious to eggs used for incubation.

Peach-Stone Meats Poisonous.—Children, and some grown people, are fond of cracking peach-pits and eating the kernel or meat. The "London Globe" decribes the painful death of a boy from eating them, and says one ounce of the kernels contain about one grain of hydrocyanic or prussic acid. We do not know as to the quantity, but this is one of the most virulent poisons known. One grain will kill an adult person, while ⅓ to ½ of a grain will generally prove fatal to a child. In case of accidental poisoning, inhaling ammonia (spirits of hartshorn), and applying ice-cold water to the head, and pouring it along the spine, are helpful. The best antidote, when it can be quickly obtained, is to swallow 20 grains of carbonate of potassa, diluted in one or two ounces of water, and immediately after, 10 grains of sulphate of iron (copperas), and a drachm of tincture of chloride of iron, mixed in an ounce of water. The above amounts will neutralize nearly 2 grains of the hydrocyanic acid.

Plants Named.—"H. O. A.," Parkman, O. The "Common," or "Low Mallows" (*Malva rotundifolia*), a frequent, but not especially troublesome weed... "W. K. C.," Plymouth, Mass. The "Tufted Vetch" (*Vicia Cracca*), one of the prettiest of the Vetches, and sparingly naturalized in the older States...."J. B.," Venango Co., Pa. Lavender Cotton (*Santolina Chamaecyparissus*), a native of Europe, and more cultivated abroad than with us, for its very fine and silver-gray foliage.

A Sprained Shoulder.—"A. E. A.," Pawnee Co., Kansas. A sprained shoulder will not improve by rest. If some exercise is not given, the muscles will shrink, the sinews become shortened, and the lameness will be permanent. The proper treatment is, to apply some stimulating mixture, such as liquid ammonia, 1 part; olive oil, 2 parts; or camphorated spirit. If there is any heat and tenderness, cold water should be showered upon it by a syringe, or with the spraying nozzle of a hand force-pump, until these symptoms have subsided, when the liniment may be rubbed in. The horse should be walked about gently for an hour or so, twice a day.

"Horse Sorrel."—"J. H. K.," Wis. We know of no weed generally called by this name; the sorrel common as a weed, is often called "sheep sorrel," and this is probably the plant referred to. It is not a difficult weed to subdue, by occupying the soil with better plants. You do not say where it occurs; if in grass lands, encourage the growth by top dressing with the most available fertilizer. The old notion that it indicates a "sour soil," and lime must be applied to neutralize the acid has no other foundation than the fact that lime acts beneficially upon the soil and favors the growth of useful plants.

Feeding Jersey Cows.—"Baltimore." For a moderate-sized Jersey cow milking 10 quarts, and making 1 lb. of butter a day, the following ration of the mentioned food would at least be required: Cut corn-fodder of the best quality, and well cured, 12 lbs.: mixed bran and heavy middlings, 4 quarts; of roots, one peck at noon, cut, and sprinkled with a quart of middlings. It is best to wet cut fodder, mixing with it the middlings and bran.

No Cure for Spring-Halt.—"S. M., Riverside, Va. "Spring-halt" is the result of a defective nervous action, and is usually beyond the reach of medicine or treatment. Sometimes the affection may become relieved through an improved general condition, but usually, as the horse gets older, the trouble becomes worse, and weakness of the limbs and general debility increases. Nutritious food, tonics, and the best care are palliatives.

Renovating an Orchard.—"J. J. L.," Louisville, Ark. We would not advise sowing grain of any kind. If you can not give it a generous manuring, then sow clover, or cow peas, to be either turned under, or pastured by swine; after this, a good dressing of lime or ashes would be beneficial. If the trees are full grown, or have reached bearing size, they need all the nutriment the soil can afford, and no crop that is to be taken away from the land, should be grown in the orchard.

Lost Teats May be Recovered.—"M. J. G.," Irving, Minn. When from any cause a young cow loses the use of one or more of her teats, or their functions cease, there is probability of recovery, if proper means are used. These are, to rub the affected part of the udder with gentle kneading for half an hour daily, to apply with the rubbing iodine ointment, diluted with twice the quantity of glycerine; to milk the teats in the usual manner at every milking time, and if there seems to be any obstruction in the teat, to inject a solution of one teaspoonful of soda in a teacupful of water, and after 10 minutes to milk it out.

Norman and Clydesdale Horses.—"O. H. H.," Mount Ayr, Iowa. The differences between the Norman and Clydesdale horses are, that the Normans are generally dark iron, or light dappled gray, and are coarser built animals than the latter, which are generally brown or bay, and are very well proportioned and fine boned. The Normans should not be confounded with the Percherons, which are a purer bred race, finer limbed, and light-gray, brown, or bay in color; these two kinds of horses are both natives of France, one of Normandy and the other of a district called La Perche.

The Squirrel Pest is one of the great annoyances of the California farmer, and various are the devices for destroying them. One Mr. Benton takes contracts to clear farms at 9 to 10 cents per acre, according to their size. One farmer declined to pay this price, but was willing to give 4 cents a head for all the squirrels destroyed. He probably found he had not made a very shrewd bargain when Mr. B. drove up to his house with so many wagon loads of squirrels that it took a check of $500 to pay according to the terms of his agreement.

Parents and Teachers will be interested in the advertisement of New School Books, by Messrs. D. Appleton & Co., which we commend to their attention.

Differences Between Hill and Valley Land.—"P. Y. P.," Phila. It is a mistake to suppose that a greater number of plants can be grown upon sloping land than upon land having the area of the horizontal base of the slope; or that more rain falls upon such a surface, or that more pickets are required for a fence upon such ground. This can be proved by drawing a sloping line with a horizontal base line beneath it, and then a series of lines perpendicular to the base.

Patent Gates.—"J. W. M.," Monroe Co., Mich. If a person has used a gate for 19 years, and can prove it, he cannot be compelled to pay a license for its use on any patent taken in 1865.

Catalogues Received.

NURSERYMEN.

J. W. Adams, Springfield, Mass.—Special strawberry list, with directions for culture.

Edwin Allen, New Brunswick, N. J.—A comprehensive list of fruit trees, small fruits, ornamental trees, shrubs, etc., grown at the "New Brunswick Nurseries."

Wm. F. Basset, Hammonton, N. J.—Strawberries, including the novelties.

P. J. Berckmans, Augusta, Ga.—Wholesale and retail list from, in every department, the most extensive nursery in the Southern States.

H. H. Berger, San Francisco, Cal.—Japan Persimmons and other Japanese trees.

Cayuga Lake Nurseries, Union Springs, N. Y.—Offer stock very low to the trade this fall.

J. Lewis Childs, Queens, N. Y.—Is getting to be an extensive purveyor to florists and gardeners, and this fall sends out a full list of hardy bulbs.

John S. Collins, Moorestown, N. J.—Price list of strawberries, raspberries, blackberries, currants, grapes, etc., with strawberries as a specialty.

J. Dillon, Bloomsburg, Pa.—Strawberry catalogue, including the "Sharpless."

Ellwanger & Barry, Rochester, N. Y.—Send the 23d edition of their Fruit Catalogue, which, besides giving the prices for an immense variety of fruits, including several new ones, is valuable for its information. The same applies to their special Strawberry Catalogue.

H. M. Engle & Son, Marietta, Pa.—Circular of New Early Peaches with colored plate of the "Wilder."

Ferris, Minard & Co., Poughkeepsie, N. Y., send their "Wholesale Nursery Trade List" for 1878-'79, which offers a full stock of the standard sorts.

A. Hance & Son, Red Bank, N. J.—Strawberry Catalogue—especially new and old sorts pot-layered.

T. S. Hubbard, Fredonia, N. Y.—Wholesale list of general stock. Vines a specialty.

W. W. Johnson, Central Lake, Antrim Co., Mich.—Native and other forest trees and tree seeds.

Wm. S. Little, Rochester, N. Y.—Semi-annual wholesale price-list of fruit and ornamental trees, etc.

E. Moody & Sons, Lockport, N. Y.—Wholesale list, with special rates by the car-load, are offered by this, one of the oldest and best known of nurseries.

N. Ohmer, Dayton, O., makes a specialty of the "Gregg" raspberry, which receives strong testimonials from some of the leading growers.

William Parry, Cinnaminson, N. J.—Several lists setting forth a number of novelties in small fruits.

E. B. Richardson, Geneva, N. Y.—Wholesale trade list of general stock.

E. P. Roe, Cornwall-on-Hudson, Orange Co., N. Y.—As usual makes his catalogue something more than a mere price list, with his notes and comments. His new gooseberries heretofore have been exempt from mildew, and we should not have known that they did otherwise this year, had he not published the fact himself

Henry S. Rupp, Shiremanstown, Pa.—Supplemental list of fruit and other trees at greatly reduced rates.

Steele Brothers, La Porte, Ind.—Small fruits and cuttings of the same.

The Co-operative Nursery & Fruit Co., of Los Angelos, Cal., make their bow to the public with "500.000 first class healthy, well-grown Orange and Lemon trees." We recognize some familiar names in the "company," which makes such a *numerous* bow.

F. Trowbridge, Milford, Conn.—Special catalogue of cranberries.

E. & J. C. Williams, Montclair, N. J.—Devote themselves to small fruits. Among the novelties is the "Montclair," a new raspberry of their own.

SEEDSMEN, FLORISTS, AND BULB DEALERS.

The general seed catalogues are not usually ready before February, but most dealers issue a fall list for new bulbs, and other articles in season. Neither is it the usual time for florists' catalogues, and we place the few that have come to hand, with the seedsmen's lists.

B. K. Bliss & Sons, 34 Barclay street, N. Y.—Their "Autumn Catalogue of Flowering Bulbs and Small Fruits" contains 72 pages, is fully illustrated and enumerates a wide variety of things appropriate to the season.

Wm. H. Carson, 125 Chambers St., N. Y.—A full assortment of bulbs; seeds for the season and small fruits.

L. B. Case, Richmond, Ind.—His "Botanical Index" besides serving as a catalogue, gives interesting items about plants.

Wm. Morton & Son, Allen's Corner (near Portland), Me.—Florists' stock in variety.

Arnold Puetz, Jacksonville, Fla.—Native and other plants, dried grasses, etc.

Aug. Rölker & Sons, 44 Dey St., N. Y.—Importer of Holland Bulbs, Flower-roots, and Florists' supplies.

George Such, South Amboy, N. J.—Issues his catalogue of stove and greenhouse plants, which is pleasant to look upon for its neatness, and satisfying in the rare excellence of the stock. For the first time, Mr. S. issues a special Bulb Catalogue, handsome enough to be the companion of the other.

J. M. Thorburn & Co., No. 15 John St., N. Y.—Besides a full assortment of the usual kinds of hardy bulbs, a very large list of the rare sorts and greenhouse bulbs.

James Vick, Rochester, N. Y.—Sends his "Floral Guide" for Autumn, and as usual it is full of good things.

LIVE STOCK.

E. F. Brockway, Ainsworth, Iowa.—Poland China Hogs and Poultry. Also Artichokes to feed the pigs, and evergreen trees for shelter, (we suppose).

John S. Collins, Mooreston, N. J.—Catalogue of Jersey Red Swine.

Benson, Maule & Co., Philadelphia, Pa.—This firm are extensive dealers in blooded stock, including Jersey, Guernsey, Ayrshire, and Shorthorn cattle, and the popular breeds of sheep, swine, and poultry. They combine in their large, illustrated catalogue, announcements of their seed and plant business. It is said that the sales of this concern are rapidly increasing—a pretty good indication of the way they treat their customers.

"Riverside Farm," owned by C. B. Mattocks, Portland, Me.—Mr. M. makes a specialty of Berkshire Swine, Coltswold Sheep, Bronze Turkeys, Pekin Ducks, and Light Brahma Fowls. Many of his sheep and swine have long pedigrees, as set forth in his handsome catalogue.

Geo. G. Maxon, Schenectady, N. Y.—The "Riverside Herd" of Shorthorns have some choice blood in them, if an illustrious ancestry can give it.

E. E. Hardin & Co., Scotia, N. Y.—Breed and offer for sale all kinds of fancy poultry.

J. T. Strong, Lansing, Mich.—Deals in fancy fowls, rabbits, including the pretty Angora and English varieties, Guinea pigs, etc.

M. B. Rowe, Fredericksburg, Va.—Offers eggs for hatching, and Jersey and Ayrshire cattle for sale.

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Clough Refining Company, Cincinnati, O.—This company offer machinery for refining sorghum syrup and sugar by a special process, which meets with general favor, to judge from the testimonials of chemists and cane growers, given in their pamphlet.

Dairy Supply Co., No. 15 Murray street, N. Y.—Make a specialty of the Pendulum Churn, "The Monitor," and set forth its merits in a pamphlet which will interest butter makers.

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Dr. M. H. Winnebrener, Chicago, Ill., has just invented a "combined cultivator and irrigator," which at least has the merit of novelty. He has the good judgment to quote from the *American Agriculturist*, in support of irrigation as a practice.

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Perfectly tasteless, it preserves them as if fresh, with finest flavor, taste, and color. The only article in its line which received the Medal and Diploma at our Centennial Exposition; was awarded the Medal of Superiority by the American Institute in N. Y., 1877. Price 50 cts. per Box. Sent by mail to any address, postage prepaid. Agents wanted.

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Are kept Sweet by
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No cold or sore fingers, if used with gloves or mittens. Can be used without gloves or mittens, if desired. Will last a life time. Taken 6 Premiums. One sample 25 cts.; two for 45 cts.; 5 for $1.00.

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Gents:—Please send me 100 Huskers at once. They sell like hot cakes. Was out about 3 hours and took orders for 25 to deliver to-morrow. Please hurry; will send more orders soon. Have tried the husker; they do all you claim. Met one Farmer who had one and wants another, if he has to pay $1.00 for it. J. H. WARNER, Morristown, Pa.

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We mention herewith a very few of the many readers of the *Congregationalist,* (Boston, Mass.,) who have already bought this machine, and hundreds more could be added:—W. W. Kinsley, Washington, D. C.; Mrs. James A. Webb, Janesville, Wis.; Peckman & Waterman, Bayraville, Conn.; Mrs. Jane Austin, Castine, Me.; James Hunter, No. Brookfield, Mass.; W. D. Billings, Hatfield, Mass.; J. C. Maxwell, Saxonburg, Pa.

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The Monitor Seed Drill.

This is the most complete and positive Seed Drill ever invented. It is radically different from and superior to all others. It is the **only** machine which measures and drops the seed with a positive motion, and exactly the same amount at each foot or yard. It has been tested by 5 years' use in Massachusetts, and was awarded the highest prize at the "Centennial." ☞ The "Monitor" has been thoroughly tested during the season of 1878, and heartily endorsed **as a First Class Machine** by Professor Geo. Thurber, of New Jersey, and by Jas Vick, of Rochester, N. Y.

☞ **Agents Wanted.**—For full descriptive circular and testimonials, address
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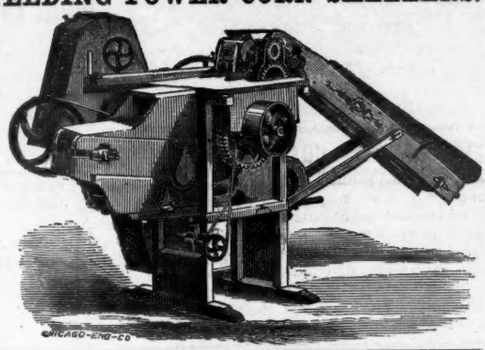
ADAMS' PATENT SELF-FEEDING POWER CORN SHELLERS.

Strong, reliable, thorough in all parts of their work, (shelling, separating, cleaning, and elevating). Perfect self-feeders, and best machines for mill and warehouse purposes, as well as for farm and plantation. Their superiority attested by twenty years' use in the heavy corn-growing sections, during which time they have received first premium at all State and World's Fairs wherever exhibited.



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Sandwich Manufacturing Co.,

Sandwich, DeKalb Co., Ill.,

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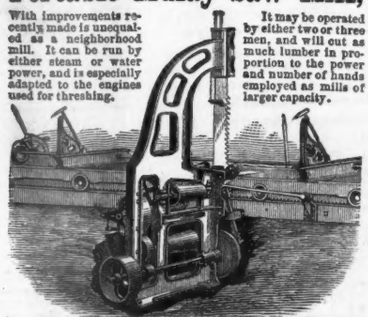
☞ These Machines will be on exhibition at leading State Fairs East and West.

Portable Mulay Saw Mill,

With improvements recently made is unequaled as a neighborhood mill. It can be run by either steam or water power, and is especially adapted to the engines used for threshing.

It may be operated by either two or three men, and will cut as much lumber in proportion to the power and number of hands employed as mills of larger capacity.



It makes **smooth and even lumber, leaves no stubs** to **hot** And will cut **any sized log** up to four feet in diameter. It may be transported from one locality to another and re-erected ready for sawing in from **two to three days**, and can be made profitable in localities where there is not sufficient timber to justify the erection of a large mill. Send for descriptive circular, price, etc., to **CHANDLER & TAYLOR**, Indianapolis, Ind.

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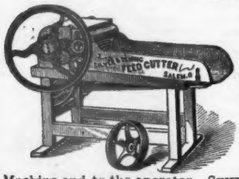

Celebrated for its great capacity, ease of running, and its adaptability to all kinds of work. Our Power Cutters are fitted with an **IMPROVED SAFETY FLY WHEEL**, and in the event of iron or other hard substances getting into the feed the Fly Wheel revolves, but the knives stop, thereby securing safety to the Machine and to the operator. SEND FOR CIRCULAR.

SILVER & DEMING M'F'G CO., Salem, Ohio.

STEDMAN & CO.,

MANUFACTURERS OF

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Power Corn Shellers and Cleaners.

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The Grinding parts are **STEEL.** It is adapted to all kinds of horse-powers, and grinds all kinds of grain rapidly.

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PATENT LEVEL TREAD

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SPEED REGULATOR.

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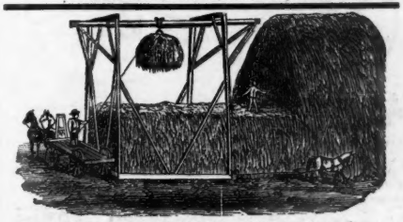

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For elevating and conveying Hay, Grain, etc., in barn, barrack, shed, or field. It elevates perpendicularly and conveys horizontally any desired distance. No trouble about getting over high beams and to the end of deep mows, or to the top of high stacks. **Thousands are now in use.** Five tons have been stacked and the frame moved in 45 consecutive minutes. Fifty tons have been stacked in a single day with this Frame and Carrier. Send for Circular "2" to
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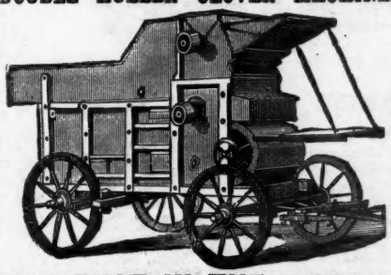
Galvanized Cable Fence Strand.

The only wire fence that stands the test of time.
P. S. JUSTICE, 14 N. 5th St., Phila., Pa.

THE CELEBRATED VICTOR DOUBLE HULLER CLOVER MACHINE.



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NEW CORN STALK AND FODDER CRUSHER.

Price $40.00 and $50.00 each. Send for descriptive catalogue and price list of the above machines.

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Agricultural Implement Manufacturing Co,
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Montgomery's Imp. Rockaway Fan!

210 Premiums. **15 Silver Medals.**

No good Farmer can afford to be without one. Victorious at every State and County Fair where exhibited, and is the best and cheapest Fan made in the Country for the Farmer and Planter.

PRICES GREATLY REDUCED.

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CIDER PRESSES,

Apple Graters, Elevators, Etc.

BOOMER & BOSCHERT PRESS CO.,
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Big Giant Corn Mill,

Every Man His Own Miller.

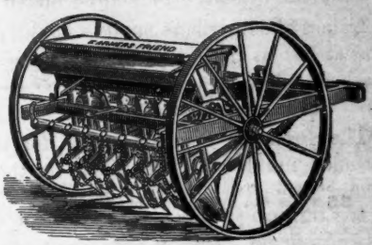
The only Mill that will grind Corn with Shuck on without extra expense. The only Mill grinding Corn and Cob successfully that will grind Shelled Corn fine enough for family use.

Grinds twice as fast as any other Mill of same size and price.

MANUFACTURED BY

J. A. FIELD, SON & CO.,
922 N. 2nd St., St. Louis.

Farmers Friend Grain



And Fertilizer Drill.

The quantity is regulated with gear-wheels **in a CONE, and controlled by a Lever,** so there are no **loose wheels** or **movable feeders,** and it will sow any grain perfectly and accurately.

It has the best **Spring Hoe,** and every Drill has a **Force-Feed Grass-Seeder, Patent Shifter,** and **Surveyor** free.

Illustrated Catalogues, with description, prices, and a **Full Centennial Report,** sent on application. Agents wanted in unoccupied territory. Address, stating where you saw this notice,

FARMERS' FRIEND MANUF'G CO.,
Dayton, Ohio.

HARRISON'S MILLS,

NEWLY IMPROVED.

New Standard Flouring Mill. New Standard Corn Mill.

Capacity of 12-inch Mill, 2 to 12 bus. per hour; capacity of Light 20-inch Mill, 6 to 40 bus. per hour.

Wholesome Bread, Fine Flour, High Speed, Quick Work, and Economical Milling Fully Established. For illustrated catalogue, describing the Harrison System, Address, Estate of

EDWARD HARRISON, New Haven, Conn.
(William A. Foskett, Administrator.)

The Birdsell Clover Separator,

SOUTH BEND, IND.

FOR SALE.—One Double-barrel Breech-loading Central Fire Shot Gun, 12-guage. Address, FRANK SCHLEY, Frederick, Md.

"DEFIANCE" SPRING WHEAT.—Premium 2.

Good Things Free.

As stated on page 361, the Publishers are preparing an *extensive assortment of Good Things* to be presented to their friends who gather and forward subscriptions for the *American Agriculturist*. We cannot find room for this list in the regular paper, but will mail a *free* copy of the full Illustrated and complete Descriptive list to any one who will send his or her address on a postal card, and say: "For a Premium List."

As many are desirous of beginning to collect subscribers, we insert here a very *few only* of the many articles to be offered.

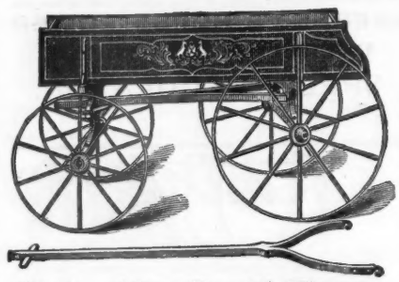
Names of subscribers can be sent along now as fast as gathered, and all names marked "For Premiums," will be entered to the credit of the sender.

The Premiums will be given for a specified number of subscribers at the regular rate of $1.50 a year, post-free,

BUT any person sending at least **twenty subscribers and upward,** *at the lowest rate of* $1 *a year, post-free, will be allowed to order any premium offered to the amount of* 10 *cents for each subscriber sent by him; or, for every club of twenty subscribers, at* $1.00 *each, an extra copy of the paper will be given, without other Premiums.*

Nos. 1, 2.—New Hybrid Spring Wheat.—After a careful trial of six years, Messrs. B. K. Bliss & Sons, who are known as one of the most reliable seed houses in New York City, offer to the public the two varieties of Spring Wheat, the **Champlain** and the **Defiance,** which we present as Premiums, feeling assured that they will be *valuable acquisitions* to the wheat-growers of the country. We have seen specimens of both varieties, raised in widely separated portions of the country, and they appear fully to sustain what is claimed for them. Premium No. 1, the **Champlain** Spring Wheat, was produced in 1870, by Mr. Pringle, in his endeavors to unite the remarkable hardiness of the Black Sea with the fine and superior quality of the Golden Drop. Several varieties were the result of this hybridization, from which this one was chosen, as realizing the end in view, showing greatly increased vigor and productiveness over both its parents. A careful selection from this for the past seven years has now fully established its character, and we have a wheat bearded like the Black Sea, with the white chaff of the Golden Drop, free from rust and smut, yielding a lighter-colored grain than the former, which makes a flour of *superior quality.* Its strong and vigorous straw, growing 6 to 12 inches higher than its parent varieties, stands erect, frequently bearing even in very ordinary culture heads from 5 to 6 inches in length, containing from 60 to 75 kernels each. We confidently recommend this new wheat as among the earliest, promising to give the grower of this most important crop better results than are produced by the old and "run out" varieties now sown. Four subscriptions, at $1.50 each, will secure **three pounds** of this wheat, sent post-paid.

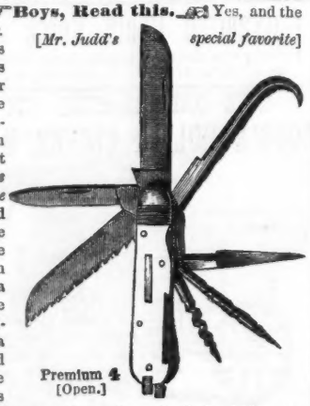
Premium No. 2, the **Defiance,** is another variety of Spring Wheat of the highest promise, the result of a series of experiments by Mr. Pringle in 1871, to incorporate superior qualities upon the hardy stock of our common Club Wheat, by hybridizing it with one of the finest, whitest, and most extensively grown sorts of the Pacific Coast. This variety displays great productiveness, vigor, and hardiness. It is a beardless, white chaff wheat, with heads frequently 5 to 6 inches long, very closely set with large white kernels, frequently numbering 75 to 80 to the single head. Its white, stiff, erect straw, exempt from the attack of rust, its earliness, combined with great vigor and superior qualities, should claim for it universal trial. [See engraving]. Four subscriptions, at $1.50 each, will secure **three pounds** of this wheat, sent post-paid.



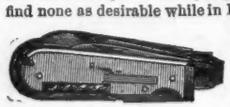
No. 3.—"Our Boys'" Wagon.—For the use of Boys from 6 to 15 years of age. The bed is 2 ft. 8 in. long, 1 foot 3 in. wide, and 5 in. deep. The wheels are all iron, the spindles also of iron. It is finely painted, a first-rate and handsome wagon, and will carry a weight of 400 to 500 lbs. on a level road. Made by the Silver & Deming Manuf'g Co., Salem, Ohio. 12 subscriptions, at $1.50 each, will secure it, or we will supply one for $8. The freight from the factory in either case to be paid by receiver.

No. 4.—Multum in Parvo Pocket Knife.—☞ Boys, Read this. ☜ Yes, and the *Men*, too. Mr. JUDD thinks more of this than any other article of twice its cost. He obtained one in London just *eleven years* ago, which *he still carries*, and says it far more than pays the interest on $100, (2 cents a day,) for, aside from its ordinary use as a double-bladed knife, some one of its "tools" is often worth a "quarter," by being on hand and just the thing wanted in an emergency. He sent an order to England at three different times, but only received much larger, clumsier articles, less effective, and costing $5 each, and finally learned that the original maker was dead. He then got some English cutlers here to make them, but they did not always succeed in keeping up a supply of first-class articles. We now get them *all right* of the MERIDEN CUTLERY COMPANY, and much cheaper than any imported. (Mr. JUDD could find none as desirable while in London on his last visit.)

[*Mr. Judd's special favorite*]



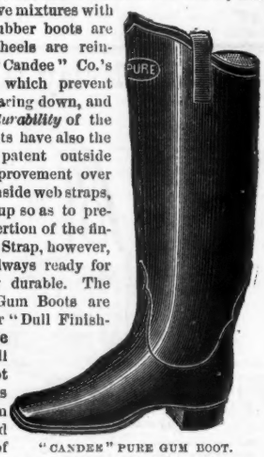
Premium 4 [Open.]



Premium 4 [Closed.]

The Engraving shows the parts of the knife, except the very convenient and very effective *Screw-driver* hidden by the opened large blade. The *Saw* is double-toothed, and will cut an inch board, saw off a good-sized stick, cut a notch, etc. The *Hook* is used to lift a stove-cover, pry open sundry things, clean a horse's hoof, pull on the boots, etc. The *Punch* makes holes in harness, wood, etc., which can be enlarged by its sharp corners. The *Gimlet* and *Corkscrew* are convenient, of course. The *Tweezers* and long *Pointer*, or *Brad-awl*, drawn from the end of the handle, often come into use. The back of the Hook makes a good *Hammer* for tacks, and small pounding. The inside of the Hook forms a small *Nut-cracker*. All close into a compact white handle, the whole weighing only 2 ounces. IT IS A POCKETFUL OF TOOLS. Seven subscribers at $1.50 each brings it *free*, post-paid.—[We will send one, post-paid, for $3.50.]

Nos. 5, 6.—Men's and Boys' Pure Gum Boots.—The "*Candee*" Pure Gum Boots (L. Candee & Co., New Haven, Conn.) are made with a view to great durability, and are claimed to be entirely free from the adulterative mixtures with which common rubber boots are cheapened. The heels are reinforced with the "Candee" Co.'s patent *heel irons*, which prevent the heels from wearing down, and therefore add to *durability* of the Boots. These Boots have also the "Candee" Co.'s patent outside straps, a great improvement over the old-fashioned inside web straps, which always curl up so as to prevent the quick insertion of the fingers. The Outside Strap, however, is quite handy, always ready for use, and perfectly durable. The "Candee" Pure Gum Boots are either varnished, or "Dull Finished." Experience shows that the dull finish boots are not quite so durable as those protected from the atmosphere and from the ammonia of barnyard-manures by a coat of varnish. Hence the manufacturers recommend the Varnished Pure Gum Boots, and *warrant* every pair to give reasonable satisfaction. We offer the Men's Size for 8 subscribers, at $1.50 each, or the Boys' Size for 6 subscribers, at $1.50 each. Carriage to be paid by receiver. In ordering these Premiums, state the *size of the shoe you wear.*



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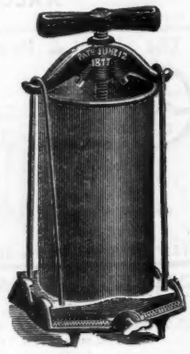
No. 7.—Household Press.—This is one of the most convenient little inventions for the housekeeper that we have seen. It is designed for pressing corned beef, spiced meats, boned turkey and chicken. By an easy change of the bottom, the press can be used in making jellies, cider, or pressing out lard, tallow, herbs, or beef for tea for invalids, and in many other ways. Supplied by W. A. BOARDMAN, Medway, Mass. We will send one *free* for 4 subscribers at $1.50 each, [or on receipt of the price, $2.00.] Expressage to be paid by Receiver.



Premium 7

No. 8.—Bracket-Saw Drill, No. 1.—A very useful little tool. The Drill Stock, and Six Drill Points, and Wrench, are packed in a box. For only Three subscribers at $1.50 each, we will send the Drill, or we will supply it to any one, post-paid, for $1.15.

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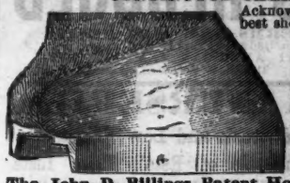

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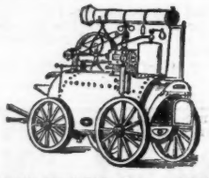

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There is no obstruction whatever to the draft, yet the returning of the flames through the small tubes compels the deposit of the great body of sparks in the chamber rear of the boiler.
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Also **Manufacturers and Dealers in Cheese Factory Outfits and Supplies.**
N. B.—The Economizer Boilers are manufactured for us (in duplicate parts), under United States patents, by Porter Manufacturing Company, Syracuse, N. Y., thus securing perfection and uniformity. The demand is unprecedented, even in these dull times.

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For Farmers, Machinists, Printers, and all requiring Light Power.
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PORTABLE ENGINE
2½ to 10 H. P.
Made by Special tools.
All parts duplicated.
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SKINNER & WOOD,
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MY TRUSS FENCE is cheap and durable. See advertisement on page 397.

THE WONDERFUL $3 JIG SAW.

In the July No. *American Agriculturist*, page 277, appeared a large 3 col. advertisement and description of this really wonderful machine,—wonderful on account of its great capability, practicality, and its *marvelous cheapness.* Made from finest selected stock (*no poor material of any kind in it*), and by skilled labor. It is at once *the cheapest, most capable, and most desirable* piece of machinery in the world. It is NOT an amateur machine; professional mechanics use it. It will saw out stuff 1 inch thick readily. It runs true as a die, and *the most intricate scroll sawing, and as lace work,* can be made with one. For carriage makers, cabinet makers, and fancy carpenter work generally, it is as good as any **$25** machine, and it takes in larger work than most of them. For boys for bracket sawing, &c., it is truly a prize, and **it pays for itself in 3 days.** Parents teach your boys a *trade*, and amuse them at the same time. Bracket saw work commands good prices, and good mechanics good wages. A single one of these machines could *not* be made for $15. We make them by the 10,000, and sell for the lowest possible price. Only **$3** for the genuine Improved My Companion Jig Saw, and over $2 worth of designs, saws, illustrated lessons, &c., &c., **given free** with each machine. Sent by freight or express on receipt of price. Saw complete, **$3.** Saw and drilling attachment, **$3.50.** *Saw, drill, powerful turning lathe, and circular or buzz saw,* **$5. Satisfaction guaranteed, or your money cheerfully refunded.** All orders must be sent to **The Turner Manufacturing Co., 93 Water Street, Boston, Mass.,** for this machine.

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The Auxiliary Rifle Barrel embodies the results that have been sought after for years, viz., to change a breech-loading shot-gun to a rifle at a moment's notice. In the simplicity of this invention lies its unprecedented success. There are no screws or nuts, and it is inserted in the shot-gun barrel same as a cartridge in a gun, and ejected likewise and with the same rapidity. The Rifle Barrel rests on two bearings which *perfectly centre* the shot-gun barrel. The rear bearing will *always* fit the gauge for which it is ordered. The front bearing is a detachable washer or ring; several of these go with each barrel; they vary 1-100 of an inch, and one of these will invariably fit. The Auxiliary Rifle Barrel is made by the **Winchester Repeating Arms Co.,** AND GUARANTEED PERFECT, ACCURATE, AND OF THE BEST MATERIAL, BY THEM. And the shot-gun sustains no injury from its contact with or the use of the Rifle. A long range target sight to attach to grip of shot-gun is sent with every Auxiliary Rifle. The "Auxiliary" has held its own at every match in which it has been used, and at 200, 500, and 800 yards it has made as good scores as a $100 Sharp or Remington. Too much cannot be said of it. Every sportsman endorses it. Among dozens of testimonials the following well-known riflemen enthusiastically praise it for target and sporting use: Gen S. R. Smith, New Haven, Ct.; James Kent, Buffalo N. Y.; G. A Spross, Toledo, Ohio; G. H. Davis (U. S. Mint). Carson, Nev.; C. C. Tiff, Glenville, Ct.; L. C. Bruce, Ira Payne, Capt. Bogardus, Judge Blydenburg, and a host of others. The fact that *they* are made by the Winchester Arms Co. is alone sufficient guarantee of workmanship. They will (in 44 calibre) give a penetration of 4 inches (pine) at 1,000 yards, and are as good as any Rifle made for accuracy. They take up but little room, and do not tire the sportsman. *In ordering, the bore of the gun for which they are intended is the ONLY measurement required.* The Rifles are made in .32, .38, .44, and .45 (government) calibres, all centre fire, and chambered for long range cartridges. **Price, to fit either 10 or 12 bore shot-guns, $12.** *This includes ejector, long range target sight, brush, and swab stick.* Sent by express on receipt of price, or by mail *at purchaser's risk,* for 35 cents extra. All orders promptly filled. Address the **Bay State Arms Co., 93 Water St., Boston, Mass.** *Every one guaranteed.*

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